

JPRS-UTR-86-005

7 APRIL 1986

# USSR Report

TRANSPORTATION

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7 April 1986

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## CIVIL AVIATION

### MINISTER BUGAYEV ON TASKS FACING CIVIL AVIATION

Moscow VOZDUSHNYY TRANSPORT in Russian 8 Feb 86 pp 1-2

[Excerpts of speech delivered by Mar Avn B.P. Bugayev, minister of civil aviation, at ceremonies commemorating Aeroflot Day held 7 February in Moscow: "Along the Party's Course -- to New Heights"]

[Excerpts]

On 7 February there was a ceremonial assembly at the State Central Concert Hall in Moscow of representatives of the capital's labor force and of civil aviation workers devoted to Aeroflot Day.

N.I. Savinkin, department chief in the CPSU Central Committee, participated in the meeting's work.

The ceremonial meeting was opened by V.S. Kolchanov, chief of the Ministry of Civil Aviation's Political Administration.

The heads of a number of ministries, and organizations and representatives of the Moscow community expressed warm congratulations to Aeroflot workers on the holiday devoted to their occupation.

A speech was then delivered by Mar Avn B.P. Bugayev, minister of civil aviation.

There has been a substantial improvement in the quality of the labor force in civil aviation. Nearly every other member of the Aeroflot labor force has higher or secondary specialized education. About one-third of flight personnel are specialists 1st class. One out of every five members of the labor force of civil aviation is a member of our glorious party of Lenin.

Based on sound tradition Aeroflot Day has become a review of the achievements and potential of air transport personnel. Today we are not merely totaling up the results, but we are also evaluating what has been done from a practical standpoint, analyzing what we did not finish and what we overlooked, and we are planning work for the future.

In the years of the 11th 5-Year Plan more than 550 million passengers and more than 15 million tons of express freight and mail were carried. Aircraft

treated more than 520 million hectares of farmland. The industry's economy has been undergoing a step-by-step conversion to the intensive strategy of development. The rise of labor productivity accounted for 75 percent of the increase in the volume of output. Specific fuel consumption dropped 10.5 percent over the five years.

Air transport has been developing at a faster pace in the regions of the North, Siberia and the Far East, where one-third of all the air traffic and more than half of the work in the economy took place. The network of air fields was expanded, and many up-to-date air terminal complexes were opened. Airports and airways have been furnished with up-to-date equipment for landing and for air traffic control.

The personnel of the Moscow air transport center have made a large contribution to fulfillment of the assignments of the 5-year period. They accounted for one-fifth of Aeroflot's entire output. Many workplace initiatives were generated here, and new technology was put into practice. It was the Muscovites who laid out the first air routes for jets. They were the first to put the intercontinental Il-62 into use. They had the honor of initiating the service of the Il-86, the first Soviet wide-body aircraft. All of our air carriers are guided by the work of the air transport personnel in the capital. That imposes a big responsibility. We wish the Muscovites new success in their work and outstanding new achievements!

Much has been done over the last 5 years to develop Aeroflot's international connections. In spite of the problematical situation in the world, which at times threatens to explode, the positions of the USSR in the field of air transportation has been strengthened still more. Today aircraft bearing the red flag of our Fatherland fly to almost 100 countries. An agreement was reached with the United States of America to resume air transportation between the USSR and the USA beginning in April of this year. The Soviet Union has made a substantial contribution to the work of the International Civil Aviation Organization (ICAO). Cooperation of air transport personnel of the CEMA member-countries has been getting stronger all the time.

The results of the five-year period, B. Bugayev emphasized, provide evidence that the industry has been striding forward confidently along all the lines of economic and social development. Aeroflot's achievements are the result of the crash effort made by air transport personnel and of the socialist competition for a worthy celebration of the 27th CPSU Congress.

Our achievements are indisputable. But they must not engender complacency and a carefree attitude or give rise to a permissive attitude towards shortcomings and oversights. There are important gaps in the organization of traffic and in passenger service for which Aeroflot has been sharply criticized on repeated occasions. Air transport personnel have a great deal to do if they are actually to make Aeroflot the standard in transportation. The necessary level has not been achieved in certain indicators of operating efficiency and performance. The capital construction plan was not altogether fulfilled. Utilization of the aircraft fleet was not substantially improved with respect to the number of hours in the air. The problems of improving the motivation

of air transport personnel to save fuel, especially crew members and air traffic controllers, were not dealt with vigorously enough.

All air transport personnel still do not have a sufficiently high level of discipline and occupational training. The organization of their work is not always what it should be. The effectiveness of political training and personnel development and exactingness and follow-up on execution of decisions taken must be considerably greater. We must react to criticism with a respect for principle and take measures to correct shortcomings.

The role of the industry's publications in improving the activity of air transport should be enhanced. Our newspaper and magazine must analyze more thoroughly the problems in Aeroflot's development, expose shortcomings more boldly, and give support to everything that is new and progressive.

While showing constant concern for development of civil aviation, the politburo of the CPSU Central Committee adopted a decision to create political entities in the industry. Those bodies have been assigned tasks related to supervision of the party-political and ideological-training efforts, to improvement of the activity of party, Komsomol and other public organizations of Aeroflot, and to reinforcing the discipline of flight personnel and making them more responsible for ensuring flight safety, high operating efficiency and high performance.

The decision of the Central Committee's politburo has been received in the ministry and civil aviation enterprises with full appreciation.

Through the concerted efforts of the command and the management, the political officials, and the party and public organizations shortcomings should be decisively discovered and corrected, and an innovative, resourceful and creative approach taken to solving the problems which have come to a head. There has to be constant improvement of discipline and responsibility, the way things are organized needs to be improved in every respect, an attitude of intolerance towards violations of flight legislation needs to be inculcated, and a consistent and persistent fight waged to overcome such adverse things as alcoholism and drunkenness.

In the conclusion of his address B. Bugayev dwelled on those problems which Aeroflot needs to solve in the 12th 5-Year Plan.

The rise in the pace of civil aviation's development on the basis of faster scientific-technical progress and improved planning and management is the distinguishing feature of the plan for 1986 and for the five-year period as a whole, he emphasized.

By 1990 we have to increase the volume of passenger traffic by 17 percent and achieve 80 percent of the growth of output by raising labor productivity. The cost of operations needs to be reduced by at least 3 percent, and specific fuel consumption by 3-5 percent.

As in the past, the closest attention will be paid to opening flights in the North, Siberia and the Far East.

The emphasis in the use of aircraft in the economy will be shifted to the region beyond the Urals, to Krasnoyarsk Krai and other eastern regions. Aircraft will take an active part in the development of regions where the principal fuel and energy bases of the country are taking shape.

In the 12th 5-Year Plan there are plans to put highly efficient new passenger and cargo aircraft into service. New aircraft are emerging for the Arctic and Antarctica, for local airlines, as well as for agricultural and special operations. Improvement of the unified air traffic control system will continue, and introduction of the relevant computerized systems will be speeded up.

We are awaiting from industry the new Il-96-300 airliner with a high passenger capacity which has been designed for flights up to 11,000 kilometers. We hope to receive the Tu-204 aircraft with a seating capacity of 214 and a range of 3500 kilometers, as well as the new Il-114 with a capacity of 60 passengers, which is also a new aircraft for local airlines. Their fuel efficiency must meet the highest present-day requirements.

In the coming 5-year period there has to be a substantial improvement in the intensity of utilization of the airplanes and helicopters we already have. There is a need to expand the geographic area served by flights of the Il-86 and Il-62, this means building new runways at Mirnyy, Omsk, Sverdlovsk, Ufa, Novosibirsk, Irkutsk, and Volgograd.

Much needs to be done to increase the efficiency of equipment to mechanize and automate production processes, to introduce new technologies and to reduce manual labor.

A great effort needs to be made to convert the branch to the new system of planning and material incentives in the field of chemical treatment from the air. The economic experiment is also being conducted in the PANKh fleet.

In entering upon the new 5-year period the ministry has drafted a specific program to raise to a qualitatively new level the way the preparation and conduct of flights is organized. On the basis of extensive use of the results of scientific research it envisages measures to improve the effort related to flight methods and air traffic control and to make flights safer.

We have every capability for meeting a higher standard of passenger service. New air terminal complexes will be opened in Omsk, Syktyvkar, Chita, Magadan, Karaganda, Baku and Minsk.

There are plans to begin construction on new air terminals at Tyumen, Khabarovsk, Vilnius, Sochi, Simferopol, Domodedovo and other airports.

Particular attention should be turned to improving the proportional pattern of air traffic and to make more effective use of medium-range and long-range main-line aircraft.

Aviation fuel conservation is the paramount issue. The destiny of the state

plan depends to a decisive degree on reduction of its specific consumption and on its thrifty use.

Ground services, aviation maintenance facilities and repair enterprises of Aeroflot are to undergo further development.

Much needs to be done to improve the training of personnel in civil aviation, to raise that level of training in keeping with present-day requirements.

Allow me to assure the Leninist Central Committee and the Politburo of the Central Committee that the workers in civil aviation will be making every effort to successfully fulfill the assignments of the 12th 5-Year Plan and will make a worthy contribution to the further strengthening of the country's economic and defensive might.

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CSO: 1829/81

## CIVIL AVIATION

### DEPUTY MINISTER ON AEROFLOT'S PLANS FOR NEW AIRCRAFT

Moscow KRASNAYA ZVEZDA in Russian 8 Feb 86 p 4

[Article by Ivan Yefremovich Mashkivskiy, deputy minister of civil aviation: "Winged Expresses"]

[Excerpts] Aeroflot has to take the next step in its development in the 12th Five-Five-Year Plan. "...Begin operating new highly efficient mainline passenger aircraft and cargo aircraft of medium-range capacity..."--this was written in the plan of the Basic Directions for Economic and Social Development of the USSR. The editorial staff asked Ivan Yefremovich Mashkivskiy, deputy minister of civil aviation, to tell how these tasks will be resolved.

We are already preparing today to replenish our fleet with interesting new aircraft. For example, development of the Il-96-300 is being completed at the Experimental Design Bureau imeni S. V. Ilyushin. The air giant, with a takeoff weight of 230 tons, is officially designated a long-range mainline passenger aircraft. It is designed to carry 300 passengers, baggage, mail and cargo on routes of up to 9,000 kilometers with the heaviest passenger flows. Use of the aircraft on international routes is foreseen in the long term, including over routes of up to 11,000 kilometers.

Outwardly, the airliner resembles the widebody Il-86, which already is well-known to many air travelers. But only outwardly. Everything in it--from the aerodynamics, the on-board electronic systems, the materials used, and the design of the airframe to the navigational and radio communications systems--is of new quality.

The complex of on-board equipment, with multicolored cathode-ray tube displays instead of the customary instruments, ensures a high degree of automation in aerial navigation. Even the most critical stage--with the signals of radiobeacons and the aid of the automatic on-board approach system, the Il-96 will be able to make an approach itself when visual orientation is practically impossible because of weather conditions. The pilots just have to control the operation of the aircraft's perfected and reliable systems.



As for the airframe, the developers have been able to optimize the power layout, to make use of new metals and alloys, and to widen the application of composition and synthetic materials; this has reduced the weight of the structure substantially. In the final analysis, all this has had a favorable effect on the airliner's economy.

The Il-96, like its predecessor, is a double-deck aircraft. The flight deck (two pilots and a flight engineer) and the passenger cabins, which will be served by 10 flight attendants, are located on the "second level." Three bays, which accommodate more than 15 standard containers, with space remaining for "pieces of cargo," are on the lower level.

A new turbojet airliner with improved comfort and economy, the Tu-204--this is the identification number assigned to it, is being developed at the OKB [Experimental Design Bureau] imeni A. N. Tupolev. In the near future it will be replacing the Tu-154, that is, it will be operated on mainline routes of up to 3,500 kilometers. The airliner has more improved aerodynamics, which provides it with the most favorable cruising regimes, highly efficient high-lift devices, and engines with low noise level and reduced fuel consumption. All this is governed by one factor--economy, economy, and more economy.

Preference is given to turbojet engines in modern civil aviation, although it is still early to speak about the full "retirement" of turboprop powerplants. Their value is in the low fuel consumption and, as a consequence, the high economy of an aircraft. The designers of the OKB imeni S. V. Ilyushin selected just such an engine for their new Il-114 aircraft, intended for local air routes (up to 1,000 kilometers). Two low-noise engines, with propellers having six blades instead of the usual four, have been installed on the aircraft. Incidentally, specialists in our country as well as abroad are working actively to develop engines which would combine the advantages of the turbojet engines and the economy of the turboprops. Such engines have been given the name turbopanprops.

The optimum speed for this aircraft has been estimated at 500 kilometers per hour. The maximum takeoff weight is a little over 20 tons. Provision has been made for the Il-114 to land and take off not only from concrete strips but from unpaved airfields as well, which is important for serving remote cities and settlements. For this very reason, the Il-114's developers have provided the aircraft with its own ramp, which rapidly retracts into a special bay located under the entry hatch.

Such is the future for passenger aviation. But changes that are no less substantial have taken place and will be taking place in the fleet of aircraft for "the airborne shop" of the country's national economy. In the 12th Five-Year Plan, we will have to "Ensure that civil aviation is equipped with aircraft for use under conditions in the Arctic and Antarctic...as well as in agricultural and special operations..."

The Tu-134 SKh aircraft has been developed to resolve the problems of agricultural production. It is equipped with a complex of apparatus with which the condition of soil and plantings may be determined and species may be evaluated for harvesting rather quickly over large areas. The long-range



Il-18 DORR oceanic fishing reconnaissance aircraft began making flights over the country's water expanses recently. Aeroflot will be prepared to carry out still another mission that is new for it--to protect objectives such as large industrial cities from excessive rainfall. A new version--the An-30M "Meteozashchita" [meteorological protection]--also has been developed for this.

It is being planned to begin operating An-74 turbojet aircraft, intended for reconnaissance of ice conditions in the Arctic and Antarctic, and the An-72T light transport--representatives of the new generation of aircraft developed at the Experimental Design Bureau O. K. Antonov. In the near future, An-28 aircraft, as well as a new version of the L-410E, made in Czechoslovakia, will begin passenger flights on local air routes.

Aeroflot is faced with resolving many tasks--utilizing new aircraft technology, achieving an increase in economic indicators, increasing the efficiency of flights, raising the organization of ground services to a new level of quality, putting advanced air traffic control facilities into use, and mechanizing and automating many operations associated with air passenger service. The workers of the aviation sector will apply all their efforts to ensure that the plans outlined by the party are carried out.

8936

CSO: 1829/87

## CIVIL AVIATION

### An-74 TESTING IN FAR NORTH NEARS COMPLETION

Moscow IZVESTIYA in Russian 16 Feb 86 p 1

[Article by O. Borodin under the rubric "The Details for IZVESTIYA": "The An-74: Testing in Severe Cold"]

[Text] An icy fog, held down by the frost against the snow, covers the airport. The runway and its fading lights disappear into the thick, soupy shroud. Nevertheless, the weather conditions for take-off meet the minimum conditions, and the An-74 takes off into the northern sky. The plane is now in the final stage of factory testing and simultaneously is undergoing government testing. It will remain for Aeroflot officials to give the last word about the aircraft's suitability for operation in those extreme conditions for which it has been created.



The purpose of the An-74 is to haul cargo in the central Arctic basin and to fly visual ice reconnaissance missions in the Antarctic. In the cabin, the designers have provided for a small galley, 12 passenger seats and an area for a hydrologist. But at the moment the cargo compartment is filled completely with heavy testing and recording equipment.

The altimeter needle comes to rest at the 11,000-meter mark, and at this moment a red, "left engine failure" warning light comes on. The aircraft glides downward, and light vibration is felt. Beneath us gnash the sharp peaks of the Verkhoyanskiy Range.

This "failure" was thought up earlier; in fact, it was among the tasks planned for today's flight. They are just about to restart the stalled, or more precisely, "turned off" engine, but before they do, S. Nikulin, the engineer in charge of power plant testing, attentively studies his instrument readings and makes a note on his clipboard.

The An-74 is powered by two D-36 turbofan engines, which were designed at the V. Lotarev Experimental Design Bureau. The engines develop 6.5 tons of thrust. They are powerful, but also fuel-efficient--as efficient as the best foreign models.

One might say that the An-74 is being tested according to the principle of "out of the frying pan into the fire." The craft has already given a good account of itself during flights in the Ashkhabad heat, when engine thrust is significantly reduced. A. Romanyuk, who is in charge of the testing, has used a simple geographic map to plot the places where the An-74 has been. From Central Asia, its route runs northward, now to this further test of reliability in Yakutiya. The testers are happy to have encountered a temperature of -58° C. in Verkhoyansk, and temperatures in the -40 to -55° C. range are already considered by them to be normal and operational. The test pilot, Yu. Kurlin, has in mind to try to land the An-74 on drift ice.

Yuriy Vladimirovich has tested almost all of the Antonov Experimental Design Bureau aircraft; he has flown the "Antey" and made 200 flights in various climatic conditions in the "Ruslan." In the An-24 and An-26, he completed 13 landings with the engines shut down, and the latest, 13th flight was even in conditions which caused him to fly through a storm front.

"One must get used to the work which one is doing," says Yuriy Vladimirovich. Kurlin has participated directly in the testing of almost 40 aircraft. Now his flight log will include the An-74.

"It's an excellent aircraft," he says. "It's powerful, reliable and maneuverable. Of no small importance is the cockpit, which is very comfortable for work. This is due to the efforts of a group of ergonomics specialists which was especially created in our experimental design bureau."

Reliability...Yesterday Ye. Pankevich, a pilot with the State Civil Aviation Scientific Research Institute, made a take-off in the plane with a "failed" engine. A few days ago he made a landing with such a "failure." Once during one such flight the left and right engines were shut off in turn, under various conditions, 19 times. The crews who will have to operate this aircraft in the most complex conditions of the Arctic and Antarctic must be given a plane with reliability in reserve.

...Meanwhile, our flight is continuing. The altimeter needle settles on the 8,000-meter mark. Flight engineer S. Zhovnir restarts the left engine, and the alarm light turns off. The aircraft begins once again to gain altitude.

CSO: 1829/90

CIVIL AVIATION

An-74 TESTING INTERRUPTED TO DELIVER FUEL FOR ARCTIC

[Editorial Report] Moscow KOMSOMOLSKAYA PRAVDA in Russian 25 February 1986 carries on page 4 a report on the recent use of the An-74 being tested in Yakutiya to ferry fuel to the Arctic Ocean for the Komsomolskaya Pravda Polar Expedition. The plane flew from Cherskiy to Ostrov Zhokhova [Zhokhov Island] and back to Cherskiy, delivering 13 barrels of fuel for the plane waiting to make the next drop for the expedition. The flight from Cherskiy to Ostrov Zhokhova took somewhat more than an hour, and the landing was made on a runway covered by nearly a meter of ice. Although the An-74 has an on-board loading device capable of lifting 2.5 tons and moving it along the cargo compartment, the barrels were handled manually, due to the presence of more than three tons of testing equipment in the cargo area. Upon arrival back in Cherskiy, the plane was to return to Kiev to deliver to the O. K. Antonov Experimental Design Bureau the test data acquired during the month of testing in Yakutiya. In the course of long months of testing, they have recorded enough data to "fill several apartments" with magnetic tapes.

Test pilot Yu. Kurlin points out a number of particular capabilities of the An-74. It has a wide range of speeds and excellent take-off and landing characteristics; it can land at airfields having earthen or heavily snow-covered runways; reliable navigation equipment permits flight outside airways at any time, under any condition; automated approach systems in minimum visibility have been tested repeatedly. During testing in Chardzhou, a duck flew into one of the turbines, but "it was no problem--everything turned out all right." Kurlin says that they plan to finish testing this year, and that production of the An-74 should begin next year at the Kharkov plant.

Included with the report are comments by Anatoliy Grigoryevich Bulanenko, deputy general designer at the O. K. Antonov Experimental Design Bureau. He notes that although the aircraft is intended for cargo work, it has been designed to be capable of carrying passengers. The An-74 can land on skis, and it can also make parachute drops. In addition, it can run on kerosine and can manage without warm-up in temperatures as low as -26° C. Bulanenko reports that "in general, the aircraft has turned out to be beneficial and economical."

CSO: 1829/91

## CIVIL AVIATION

### Yak-42 SERVICE FROM SARATOV EXPANDED

Moscow VOZDUSHNYY TRANSPORT in Russian 15 Feb 86 p 1

[Article by A. Zhavoronskiy, deputy commander of the Saratov Aviation Enterprise, under the rubric "Scientific and Technical Progress Dictates": "Bad Weather Is no Obstacle for the Liner"]

[Excerpts] The new, 120-seat Yak-42 airliner has been given good marks by passengers flying from the Saratov Airport to Moscow, our nation's capital, as well as to Leningrad, Kiev, Krasnodar, Mineralnyye Vody, Sochi, Lvov, Dnepropetrovsk and Simferopol. With the exception of the Lvov route, all of these flights are non-stop, thereby ensuring a high level of service. In 1985, the productivity of these flights amounted to 6,290 ton-kilometers per hour, or 102.1 percent of the plan.

Initial experience in operating these aircraft permits positive conclusions about their increased reliability and high economy. The yearly savings in fuel achieved by the Yak-42's amounted to 520 tons. This figure is impressive if you keep in mind that this is only the beginning of the intensive operation of this new aviation equipment.

Implementing the decisions of the April and October (1985) CPSU Central Committee Plenums, the Saratov aviators' collective is expanding the list of places to which it flies the new aviation equipment. They are operating Yak-42 flights between Saratov and Surgut. Figuratively speaking, they have established a 2,150-kilometer air bridge between the Volga and the Ob. The Yak-42 flies this distance non-stop in just under three hours. On the first flight along this rather difficult route, the aircraft was piloted by Volga Civil Aviation Administration Deputy Chief for Flight Services Yu. Sprygin, heading the administration commission, and Meritorious Pilot of the USSR V. Peremot, commander of the Saratov Aviation Enterprise.

As of January 1986, Yak-42's are being used to haul oil worker crews from Saratov to Surgut, with intermediate stops at the Kazan Airport. On this route the Yak-42 has replaced the An-24, which is less roomy and slower over such distances.

CSO: 1829/89

7 April 1986

## CIVIL AVIATION

## L-410 STOLe AIRCRAFT, V-3 HELICOPTER TESTING IN YAKUTSK

Moscow IZVESTIYA in Russian 8 Feb 86 pp 1-2

[Article by P. Zarubin, Yakutsk: "Wings for the North"]

[Text]

The Yakutsk area long ago became a kind of testing ground for various types of equipment under extreme natural and climatic conditions. And now they are completing tests of the Czechoslovak-made L-410 STOLe aircraft at the airport outside of Yakutsk. This airplane is in service on northern. But its modified version will differ favorably in many respects from its predecessor.

"The letter 'e' in the abbreviation of the name stands for 'economical' (STOL stands for short take off and landing)," Borek Chemtmir, leader of the group of Czechoslovak specialists, recounted. "More powerful engines have been installed on the aircraft. This made it possible to substantially increase its weight loaded, and the number of passengers increase from 15 to 19. In addition, additional fuel tanks were installed, and the range of the new 'Yelka' increased by 400-500 kilometers. The new five-blade propellers have made it possible to substantially decrease the noise level. These and many other refinements on the plane have gone through all types of tests of high temperatures in Samarkand, of high mountain conditions in Dushanbe, and now cold here in Yakutsk."

"For several days the thermometer went down to minus 50 degrees Celsius," Valeriy Fedorov, Soviet test pilot, said, picking up where the Czechoslovak specialist left off. "And we did a number of flights at that temperature. At various altitudes we switched the engines on and off and conducted other experiments. The specialists have made finishing touches on a number of systems. The plane is reliable and economical."

A series of tests is being completed on the L-410e, and in Czechoslovakia this plane has already gone into series production. But whereas the airplane arrived in Yakutsk, as they say, under its own power, the V-3 helicopter was delivered to Yakutsk in an Il-76 cargo plane. This helicopter was designed by Polish aeronautical designers on order for Aeroflot. The new helicopter also went through a series of tests in hot weather, high mountain conditions and strong winds in Central Asia. And now it is to go through cold weather tests.

"The engine and reducer were removed when the V-3, or, as we refer to it, the 'Sokol,'" said Boguslav Marinyak, representative of the Polish plants and head of the group of testers. "But thanks to the fine arrangement of the power plant, it could be installed here in 1.5-2 hours of work. This is very important in the technical servicing of the helicopter. The engines on the 'Sokol' are rated at 900 horsepower. In the test we are paying particular attention to the glass-reinforced plastic rotors. There are still a number of innovations which have to be tested in the most severe area of our continent.

7045

CSO: 1829/81

## CIVIL AVIATION

### BRIEFS

**ZYRYANOVSK AIRPORT OPERATIONAL**--Zyryanovsk--The doors to the new airport were opened wide by the time fixed and the first passengers were received. It is able to accommodate aircraft which previously had not landed here--the Yak-40 and An-24. Previously only helicopters flew to Zyryanovsk, situated in the mountains of the Altay. With the commissioning of the airport, which was turned over for operation by the collective of the Zyryanovskstroy Trust of the Kazakh SSR Ministry of Construction of Heavy Industry Enterprises, air routes will link the miners' city with Ust-Kamenogorsk, Alma-Ata, Karaganda and Novosibirsk. [Text] [Moscow STROITELNAYA GAZETA in Russian 25 Dec 85 p 1] 8936

**USSR-CSSR AIRCRAFT CODEVELOPMENT PLANNED**--(TASS)--Minister of Civil Aviation B. P. Bugayev received CSSR Minister of General Engineering P. Bahyl on 21 January. Questions of further developing collaboration between the USSR and the CSSR in the development and operation of new aircraft for local air routes were discussed. [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 23 Jan 86 p 1] 8936

**TAJIK AIRPORTS UPGRADED**--A new airport terminal building is being erected at the mountain airport of Dzhirgatal. Operations are being conducted by the repair and construction section of the Dushanbe Aviation Enterprise, established in the middle of last year. This is the first time that such a subunit has been formed in the Dushanbe Aviation Enterprise. The purpose of the section is to maintain all the airports of local air routes in exemplary condition. Last year the section's specialists conducted repair operations at airports in Tajikabad, Rushan, Vanch and Khorog. This year they are faced with carrying out a large amount of work at the Garm airport; helicopter pilots permanently based here provide service for specialists of the national economy who are carrying out combined research operations on the Roof of the World, as well as in areas of the Karateginskiy, Gissar and other ranges. [By A. Pavlov] [Text] [Dushanbe KOMMUNIST TADZHIKISTANA in Russian 28 Jan 86 p 4] 8936

**LENINGRAD AIRPORT CATEGORY 2 CERTIFICATION**--Leningrad's Pulkovo Airport has received certification of the right to conduct ICAO [International Civil Aviation Organization] Category II flights. This makes it possible for aircraft to land when the ceiling is 30 meters and the visibility is 400 meters. Pulkovo Airport's certification for ICAO Category II will have a



substantial effect on increasing the regularity and economy of flights. Now there is no necessity of sending Leningrad crews being prepared for flights under ICAO Category II minimums to Ulyanovsk or Kiev, as was done until recently, for training exercises. They will be able to conduct all flight training at their own base airport. It is planned to prepare dozens of Tu-154 crews of the Leningrad Aviation Enterprise for operations under ICAO Category II weather minimums by the end of the year. [By T. Georgiyeva] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 1 Feb 86 p 1] 8936

TOLMACHEVO ATC SYSTEM OPERATIONAL--The "Start" AS UVD [Automated Air Traffic Control System], which is celebrating its new home these days, will help to improve air traffic control on one of Aeroflot's heavily traveled main transport routes, speed up the processing of flight data and analysis of the situation in the air, and increase the efficiency and skillfulness of controllers' decisions. The ninth project of this type has been registered at the busy air "crossroads" of Western Siberia--Tolmachevo Airport in Novosibirsk. The formal document turning it over for operation was signed in the last 10 days of December. Some time will be necessary for the collective to adapt to working under the new conditions, and the automated system will begin full operation. In the meantime, the ATC service at Tolmachevo is going through a time like "the great migration"--the controllers are moving to new work places. For the successful beginning of the "Start" automated system at Tolmachevo, it remains to assemble the joint efforts of the "name day celebrants" themselves--the controllers and all personnel of the ATC service--and to actively complete the precommissioning operations. It is necessary to take a course in theoretical training. [By A. Tyumin, chief of the OKS [Capital Construction Department] of the West Siberian Administration of Civil Aviation] [Excerpts] [Moscow VOZDUSHNYY TRANSPORT in Russian 4 Feb 86 p 1] 8936

EXPERIMENTAL AVIATION PLANT PRODUCTION--Riga--The products of Riga's Experimental Civil Aviation Plant No 85 have proved themselves well at many of the country's airports. Container carriers, trailer trucks, automatic loaders, engine preheaters and other items are providing significant help to lighten people's work. In the first year of the 12th Five-Year Plan, the plant will begin manufacturing special machines for overall cleaning of aircraft and appliances for cleaning airliner cabins, as well as roller tracks for mechanizing warehouse operations. [By our own correspondent R. Kerre] [Excerpts] [Moscow VOZDUSHNYY TRANSPORT in Russian 8 Feb 86 p 1] 8936

Mi-26 TESTING IN TYUMEN--Tyumen--The new Mi-26, the largest helicopter in the world, has arrived in Tyumen for operations tests. "We didn't select this region without purpose," says S. Popov, lead test pilot of the GOSNIIGA [State Scientific Research Institute of Civil Aviation]. "The large cargo capacity--up to 20 tons, the most advanced automatic equipment and electronics throughout, and engines with record-breaking low fuel consumption make the Mi-26 truly indispensable under conditions in Siberia. This is the first "swallow" of third-generation helicopters which are beginning to come to Aeroflot. In addition to its superb operating qualities, it is truly comfortable. The unusually spacious cabin, practically complete absence of vibration, and other qualities have already won fame for the Mi-26 among Aeroflot pilots. The auxiliary power plant will help to heat the helicopter

or to cool the cabin in the heat, and will provide electric power for units when it is parked. A special remote eye [teleglaz] will facilitate observation of suspended cargo." This year two such aircraft have already accrued 900 hours of flying time at Tyumen. In the course of testing, the new helicopters will deliver urgent cargo for geologists and oil workers. [By A. Mokrousov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Feb 86 p 2] 8936

An-32 DEMO FLIGHTS IN AFRICA--Addis Ababa, 16 [Feb]--An-32 aircraft have been conducting demonstration flights in Ethiopia. This aircraft, which is a modification of the An-26 aircraft, has more powerful engines and is designed for operation under mountain conditions and in a hot climate, that is, it is most suited to African countries. The An-32 can carry up to 7 tons of cargo and use unimproved runways. K. F. Lushakov, deputy general designer of the Design Bureau imeni O. K. Antonov, and test pilot V. A. Shlyakhov have been taking part in the demonstration. Local pilots in Ethiopia have been sitting at the controls as well. When the Ethiopian friends stepped out of the aircraft after landing, they raised their thumbs: "An excellent aircraft!" The An-32 is now on a demonstration tour of a number of African countries. In the Sudan, the aircraft aroused admiration when, in demonstrating its capabilities, it landed in the desert, at a place that had never been prepared for that, and took off again without difficulty. The An-32 demonstration flights also will be made in Zambia, Zimbabwe, Botswana, Tanzania and Angola. Previously this aircraft had been demonstrated in countries of the Maghreb and Latin America. [By PRAVDA correspondent A. Serbin] [Text] [Moscow PRAVDA in Russian 17 Feb 86 p 5] 8936

An-26 SERVICE TO YAMBURG--Tyumen (TASS)--An air bridge has linked the Yamburg polar gas field with the country's industrial centers. The first An-26 has arrived here, carrying products, mail and other goods for the construction and gas workers and geologists. "Until now Yamburg has been served only by helicopters," said G. Laskin, chief of the Tyumen Administration of Civil Aviation and delegate to the 27th CPSU Congress. "But the accelerated development of the deposits, from which it was decided to extract gas this year, has required a sharp increase in shipments of national economic freight. In a short time, a temporary runway was prepared and efficient operation of ground services needed to accommodate heavy cargo aircraft was organized." [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 22 Feb 86 p 1] 8936

An-28 SERVICE IN TAJIKISTAN--The An-28 aircraft has made its first passenger flights on the country's local air routes. This short takeoff and landing [STOL] aircraft appeared in the skies of Tajikistan after being tested on northern routes. "The new one" should replace the An-2, which served on the mountainous republic's air routes for about three decades. The An-28, which was manufactured by Polish aircraft builders, is distinguished by its flight qualities and comfort. The first passenger flight from Dushanbe to Kulyab was made by the crew headed by Kh. Ulmasov. Takeoff. The aircraft gains altitude. Two turboprop engines ensure safety, and a combination of modern navigation equipment makes it possible to fly in poor weather conditions day and night. We follow the usual air route. Below are snow-capped peaks, the mirrorlike turquoise surface of the Nurek reservoir, and the Baypazinskaya GES, construction of which is being completed. The basic loads for shipment

are carried by aircraft in our mountainous territory. Now a new aircraft has been included in the work... The flight from Dushanbe to Kulyab took half the time required in the An-2. "Tests have shown how great the capabilities of the An-28 are," said V. Ryazanov, chief of the Tajik Administration of Civil Aviation. "New design solutions incorporated in the aircraft presuppose that pilots will have a sufficiently high level of technical knowledge and flying skill." [By M. Lebedev] [Text] [Moscow PRAVDA in Russian 22 Feb 86 p 3] 8936

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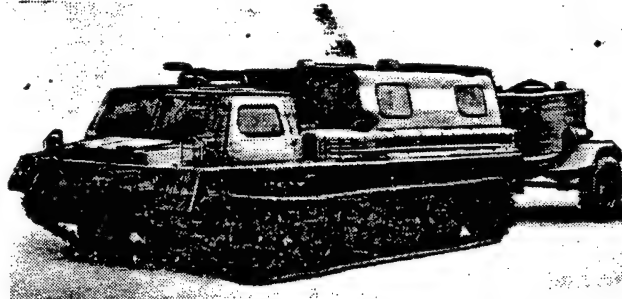
ALL-TERRAIN FIREFIGHTING VEHICLE ON GAZ-71 FRAME

Moscow STROITELNYYE I DOROZHNIYE MASHINY in Russian No 10, Oct 85 p 15

[Article by A.I. Mordukhovich, engineer (Special Design Bureau for Fire-fighting Vehicles): "The VPL-149A All-Terrain Firefighting Vehicle"]

[Text] The VPL-149A all-terrain vehicle [ATV] for fighting forest fires has recommended itself well in localizing and extinguishing forest fires in the roadless conditions of the Taiga. The vehicle consists of the GAZ-71 tracked transporter, equipped with fire-extinguishing devices, and a towed tank-trailer.

VPL-149A All-Terrain  
Vehicle for Fighting  
Forest Fires.



Among the means for extinguishing fires are tanks for water and the foaming compound, a spur-gear pump with power take-off from the transporter engine, a system for mixing foam and water, manual and chassis-mounted nozzles, a reel of flexible hose, and others. The ATV is also fitted out with fire-extinguisher packs, an incendiary device, a gasoline-powered saw, a compact motorized pump, a rubberized fabric reservoir, and a trenching device.

Mounted on the cargo platform of the ATV is a cabin with doors on the rear wall, an access hatch on the roof, and windows on the side walls.

A reservoir for the foaming compound is attached to the front wall of the cab. Along the sides of the cargo platform are two water reservoirs, connected with hoses to the fire pump and to each other. The reservoirs are equipped with filling holes, and with a mechanical leveler and hoses to prevent damage when they are being filled. Semi-upholstered seats for the firemen are attached to the upper wall of each of the reservoirs.

The NShP-600M spur-gear pump is located on a special bracket inside the cab. It takes its power from the crankshaft of the basic vehicle by means of a hub screwed onto the body of the crankshaft, a propellor shaft, an intermediate support and a universal joint. Switching the pump on and off is accomplished by the driver from inside the cab by means of a special rocker lever connected with a rod to the axle, located in the body of the intermediate support.

The intake pipe of the pump is installed in the rear part of the chassis and terminates in a connecting head to which the intake hose is attached, for water intake from a water reservoir or from the tank-trailer. The pump pressure pipe is connected by means of a tube from the water reservoirs to the water cannon, with a reel of flexible hose and a nozzle, and with a head for connecting the flexible lines to the manual water cannon. On the right side of the vehicle, above the engine compartment there is a coil of flexible hose with a continuous water supply, to which a hose coupling is attached for extinguishing peat fires.

#### Technical Characteristics of the VPL-149A Firefighting All-Terrain Vehicle

Basic Chassis Type . . . . .	GAZ-71 Transporter
Trailer Type . . . . .	TAPZ-755
Capacities (liters):	
Foam-compound tank . . . . .	100
Tanks on trailer . . . . .	600
Trailer tank (total) . . . . .	1200
Pump Output (liters/second) . . . . .	10
Length of Flexible Hose (meters)	
On Reel . . . . .	40
Pressure Hose . . . . .	20
Number of Flexible Pressure Hoses . . . . .	10
Range of Spray from Water Cannon (meters) . . . . .	25
Number and Brand of Foam Generators . . . . .	2 X PGS-200
Traveling Speed, km/h:	
Transporter . . . . .	Up to 50
Operating Speed When Extinguishing Fires . . . . .	10
Negotiable Gradient, degrees (With Trailer) . . . . .	35 (25)
Dimensions of Vehicle, with Trailer, mm:	
Length . . . . .	8,300
Width . . . . .	2,600
Height . . . . .	2,300
Weight at Operational Readiness, kg:	
Overall . . . . .	7,150
Trailer Weight . . . . .	1,800

The fire perimeter is extinguished by means of water delivered from a fully-rotatable water cannon installed on the right side on the roof of the cabin of the transporter, controlled from inside the cabin. The water cannon is equipped with a special nozzle, which permits delivering the water in the form of a spray, or as a solid stream.

One fill-up of air and water is sufficient to extinguish, for example, a fire on a 2,000-meter forest perimeter, with the use of a frothing agent; a bed of foam 2.5 meters wide, 25 cm high, and 1,200 meters long can be laid.

The fire equipment is relatively lightweight, and permits fully realizing the nominal characteristics of the ATV; when its water tanks are empty the ATV retains its buoyancy.

The water cannon on the roof of the transporter's cabin provides good working conditions for the cannoneer, which facilitates more economical consumption of the fire-suppressing liquid. The availability of the reel of flexible hose greatly enhances the vehicle's tactical capabilities, especially when extinguishing peat or subsurface humus fires. The towed trailer does not detract from the ATV's qualities of mobility.

When its reservoirs are filled with water and foaming agent, the vehicle can be effectively utilized for firefighting, putting out the flames with a solid or an atomized spray from the water cannon. When required for extinguishing burning peat, a nozzle with a sharp point is inserted, and with the help of forced air a strip of mineral foam is laid down preventing the spread of the fire. If there is no water source close to the fire, the water tank is uncoupled, and the ATV is used as an independent tactical unit for transporting the firemen to the center of the conflagration, and a prime mover is used to haul the water trailer to replenish the transporter. ATV's are used for final extinguishing of the fire; at the same time in order to economize on water, manual nozzles are used instead of the pointed nozzles.

The ATV can be used to set backfires or burns along the firelines established by the foam-generators.

If the ATV is unable to drive right up to the center of the conflagration, a compact motorized pump and a rubberized-fabric tank can be used, as well as fire-extinguishing sacking and a trenching tool.

The VPL-149A firefighting ATV is a multi-purpose tactical unit. Its high-mobility features, its water supply and foaming agent, the availability of a fire pump and motorized pumps, its rubberized-fabric tank and firefighting equipment, its operational reliability and simplicity of servicing, have made it an indispensable ground asset for extinguishing forest fires.

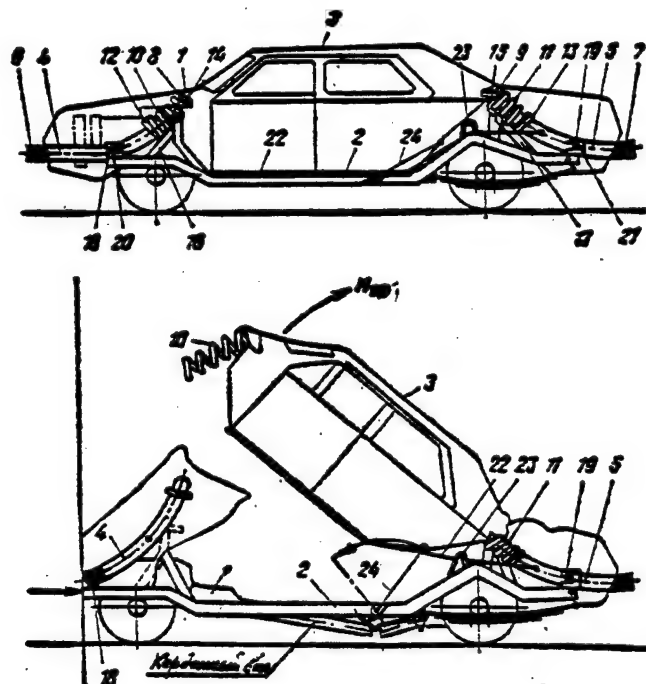
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CSO: 1829/75

## MOTOR VEHICLES AND HIGHWAYS

### INNOVATIVE COLLISION SHOCK ABSORBER SYSTEM FOR CARS

[Editorial Report] Moscow SOVETSKIY PATRIOT in Russian 25 December 1985 reports on page 4 the invention by N. Zamyatin of Tyumen of a unique system for protecting a car's occupants from injury resulting from collisions. As the diagrams below illustrate, the front and rear bumpers are spring-loaded. The shock of collision is absorbed as the passenger compartment flies upward, thereby redirecting the energy and moving the occupants out of the danger zone. At the same time, the engine drops from the chassis. The bumpers are equipped with energy damping devices to prevent premature or unnecessary activation of the system in minor collisions, "such as those with pedestrians."



CSO: 1829/111

MOTOR VEHICLES AND HIGHWAYS

JPRS-UTR-86-005  
7 April 1986

GAZ-3403 ATV APPROVED FOR PRODUCTION

Moscow IZVESTIYA in Russian 4 Nov 85 p 1

[Article by A.Yershov, special to IZVESTIYA, from Gorkiy: "Automobile Is Getting on Tracks"; the first paragraph is printed in boldface]

[Text] On the eve of the October Revolution celebrations, the basic prototype model of a tracked cross-country vehicle, GAZ-3403, has passed successfully the official state tests at the Gorky Motor Factory and has been recommended for mass production. The new vehicle is intended for operation in the harsh conditions of the North Siberia and eastern regions. Details are reported by A.Yershov, special to IZVESTIYA.

The GAZ-3403 moves easily through deep snow, crosses marshlands and, if necessary, can wade across rivers. The vehicle will be invaluable in geologic exploration and in the construction and maintenance of overhead power lines and gas and oil pipelines on inaccessible terrains.

"When developing the new cross-country vehicle," states the head of the design bureau of tracked vehicles of GAZ Production Association, "we were mainly concerned with ensuring that it could travel on the harshest terrains. Compared with the previously existing models, we introduced a large number of improvements, especially in the track propeller system. Its service life has been increased from 5000 km to 12,000 km. For the first time, a pin coated with high-strength rubber has been used in the crawler track. The maximum speed of the cross-country tractor vehicle has been raised to 60 km/hr. Thanks to larger fuel tanks, the machine can cover up to 600 km without refueling, i.e., one-third more than the earlier models. The vehicle can carry 10 passengers, accommodated in a heated cabin. The design and development of the new cross-country vehicle model involved about 20 new assemblies and systems for which inventor's certificates have been granted.

"Importantly, high cost-effectiveness has been attained, with a great reduction of operation costs."

The mass production of the new vehicle will be launched at the Zavolzhsck Tractor Vehicle Factory, which had joined the GAZ Production Association a few years ago. In the first year of the Twelfth Five-Year Plan, it will start the construction of a new assembly hall with an area of 25,000 square meters, a



modern forge, foundry and other plant units. In the meantime, a specialized production section is being set up, equipped with versatile and NC machine tools.

The Gorky autoworkers plan to make the first batch of GAZ-3403 cross-country vehicles by the opening of the 27th Congress of the CPSU.

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CSO: 1829/63

## MOTOR VEHICLES AND HIGHWAYS

### VARIOUS RSFSR HIGHWAY CONSTRUCTION PROJECTS

Moscow ZA RULEM in Russian No 11, Nov 85 p 13

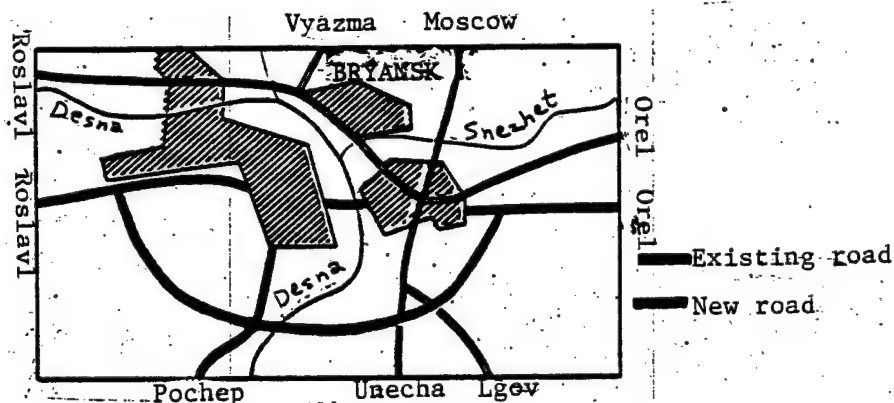
[Brief Reports by E. Safonova, Press Service of the Ministry of Highways of the RSFSR: "A Highway Chronicle"]

[Text] The Central Committee of the CPSU and the Council of Ministers of the USSR have defined for 1986-1990 a system of actions in the development and productivity improvement of agriculture and other sectors of the agrarian-industrial complex in the Nonchernozem Zone of the RSFSR. An important component of the program is the building and reconstruction of hard-surfaced automobile roads, which will be accelerated. Within these years, more than 45,000 kilometers will be added to the total length of the roads. Recommendations have been issued for the Council of Ministers of the RSFSR, the provincial CPSU committees and the executive committees of provincial councils to enlist where necessary, upon coordination with the USSR ministries and authorities, for the building of local automobile roads, not only the organizations of the Ministries of Highways of the RSFSR and Roskolkhozstroy-obedineniya [the All-Russia Association of Inter-Collective-Farm Construction Organizations], but also other organizations involved in construction projects in the zone, and also to take steps to ensure the maintenance of local hard-surfaced roads and organize in 1986-1990 the maintenance service for these roads.

Information on the construction and introduction of new roads in the Russian Federation is given below.

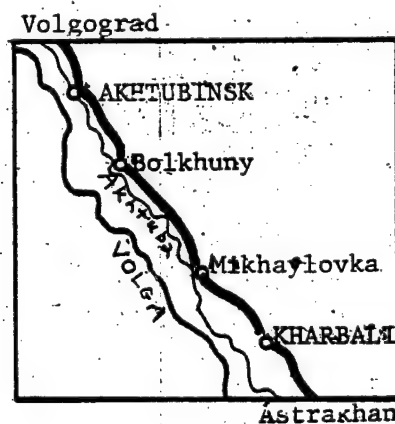
Soon to be put into operation is the new highway around Bryansk. This present to the city, which has recently marked its millennium, is being prepared by the workers of Construction Group 848 of Kievdorstroy. The bypass route, about 32 km long, will channel the transit traffic around the city, a convenience not only for the drivers but also for Bryansk residents.

The new road forms part of Orel-Vitebsk road, which is a nationally important highway. It has a cement-concrete surface, meeting the requirements of technical category 2. The road includes several structural units. One of them is a large bridge across the Desna River, 370 m long, three aqueducts over railroad tracks and four multilevel grade-crossing elimination structures.



Each new highway built in the Daghestan Mountains is a welcome event for the residents of mountain villages, cities and townships in the republic and is always a major victory for the builders, who have to operate in extremely difficult conditions of work in mountainous terrain. The Levashi-Gubden-Makhachkala Highway is no exception. It is being built by the mechanization department of Daghestanavtodor [Daghestan Highway Administration]. From 180,000 to 200,000 m<sup>3</sup> of rock has to be excavated here to build just 1 km of road.

Of 29 km of the road, 14 have already been built. Passing on the left bank of the Gerga Mountain River, the road has been planned with no sharp uphill or downhill grades, making it reliable and convenient for use. It is necessary for Daghestan and will cut by 20 km the shortest way from 12 remote mountain regions to Makhachkala and the railroads.

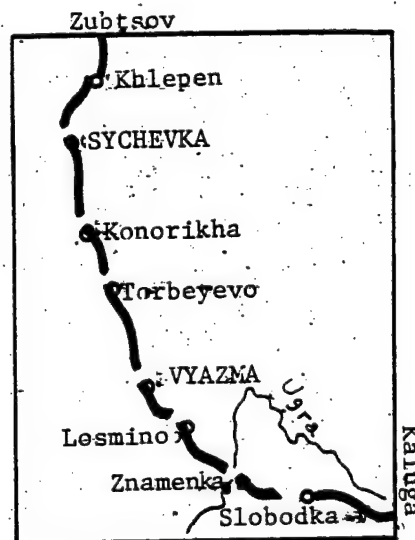


In 1985, the builders of Astrakhanavtodor [Astrakhan Road Administration] working on the Volgograd-Astrakhan Highway will complete the 30-km segment linking two district centers (Akhtubinsk and Kharabali), providing them with a connection to the city of Astrakhan. As a result, the main network of

highways of Astrakhan Province will be completed, and all of the province's 11 districts will have a reliable year-round highway connection to the provincial capital.

The new road is 475 km long. Of this, 357 km passes through Astrakhan Province, with the remaining segment going through the neighboring Volgograd Province.

In Smolensk Province, the construction is nearing completion of the Khlepen-Sychen-Vyazma-Dobraya Slobodka Highway, which links a number of major agricultural districts. The road is a joint project of the road maintenance and building administrations of Smolenskavtodor and Mostootryad-28 of the Ministry of Transportation Construction of the USSR. The team of Viazma Road Construction Unit headed by B. A. Deryabin, a Hero of Socialist Labor, has worked with record efficiency.



The route, about 146 km long, includes 10 road structures, and has asphalt-concrete surface meeting the requirements of technical category 3. The new road is the completing segment of the Vyazma-Kaluga-Tula-Mikhaylov-Ryazan highway of a Union-republic significance. It is connected with a 116-km Vyazma-Zubtsov segment, which links with the road with another provincial capital (Kalinin).

A motor road with asphalt-concrete surface is being built around the city of Astrakhan. The road, which will meet the standards of technical category 2, will link together into a common traffic network two main highways of a national significance: Moscow-Astrakhan and Astrakhan-Nevinnomyssk. The road will be 32 km long. It will include several bridgeworks and multilevel crossing elimination structures, as well as a gas station.

Bridge construction department 13 of the Avtomost Association of the Ministry of Highways of RSFSR has commissioned a new highway bridge across the Akhtuba River in Volgograd Province. The steel and reinforced concrete eight-span structure is 346 m long, with a 10 m wide roadway. The new structure replaces an old low-load float bridge near the district capital town of Leninsk, which had to be drawn during ice drifts and high tides, with seasonal severing of the road link. The major agricultural district of the Volgograd Province now has a reliable year-round bridge connection.

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## MOTOR VEHICLES AND HIGHWAYS

### FEATURES OF PAZ-3205 BUS

Moscow IZVESTIYA in Russian 18 Nov 85 p 1

[Article by A. Blokhin, special to IZVESTIYA from Gorky Province: "An Express Bus to the Village"; the first paragraph is boldface]

[Text] "Lined up near the factory gate, they looked neat, bright and festive, as brides at a wedding. There was little time, though, to indulge in romantic associations. The chief engineer of PAZ [Pavlovsk Automobile Works], S. Zhbannikov, made a sign to the driver and off we went." With these words, our special correspondent, A. Blokhin, begins his report.

The new PAZ-3205 buses will soon be put on the assembly line, and the making of the first batch has already begun at Pavlovsk Auto Works. The first 10 comfortable vehicles will be used to drive around the delegates of the 27th Congress of the CPSU. What are the features likely to please passengers, especially those in the countryside, in this new vehicle?

As soon as you get on the bus, the first things that strike the eye are rows of comfortable seats with soft-covered trauma-safe handrails and large windows allowing a perfect view. Nothing seems superfluous--everything looks handsome and efficient. The test driver, O. Fokin, added an important practical comment to these first impressions: the bus is easy and convenient to drive.

But probably one of the most important new features distinguishing this PAZ from the preceding model is that although it is not one inch longer there are 28 seats instead of 24. This is, of course, not achieved by crowding the seats but by a clever design idea. A few years ago, S. Zhbannikov, then the chief designer at PAZ, came upon the idea of slightly "straightening" the front and rear panels of the bus.

Added seats are not merely a convenience. It also means cost savings. Combined with other engineering solutions that allow the bus to run longer between scheduled routine maintenance operations (while upgrading the reliability of the main components and extending the vehicle's guaranteed life to 350,000 km), this innovation promises cost savings from the introduction of the new PAZ-3205 prototype and its modifications that have been estimated to exceed 50 million rubles.

... From the wide gallery we observe the mold room. In the middle I see a full-size mock-up bus made of clay. It looks very much like the already-familiar "05" and yet ...

"This is a modification which will use the new diesel engine made by Gorky Automobile Works," B. Kuznetsov, the chief designer, explains. "This vehicle is half a meter longer, so that the cabin will accommodate 32 seats. Other modifications of the new family of PAZs will appear in the mold room. After a thorough analysis of the requirements in the economy, we have concluded that more than 10 modifications will be needed, including four-wheel drive high-power buses. In the past, each version was designed separately. Now, we have identified a series of standard basic assemblies and trace on diagrams and mock-ups the possible modifications of the main components depending on the purposes. In essence, developing a new family of vehicles has become a sort of applied science of the industry."

... Before we leave, our hosts at the Pavlovsk factory offer us a surprise treat: they show us a special-configuration "05" bus for charter trips. We see 14 armchairs covered with dark crimson velvet with high headrests. In the rear section, separated by a partition, are a sofa, a table, a refrigerator, a wash basin and a closet. Sometime, there will come a day for these machines, too!

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CSO: 1829/63

## MOTOR VEHICLES AND HIGHWAYS

### PLANS FOR ZIL DIESEL VEHICLE PRODUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Dec 85 p 1

[Article by G. Popova, Moscow: "Using Lead-Time Production Process"]

[Excerpts] The workers of the ZIL Production Association have been launching the production of a new diesel car without interrupting the current production flow. The first few dozen vehicles have already rolled out of the factory gate. From the very start, the workers have been operating ahead of schedule.

The diesel-powered car is the vehicle of the future. It will become a reality in two stages. The first is the production of the ZIL-4331, introducing lead-time processes on temporary capacities. By the efforts of the workers at the main factory and its branches at Sverdlovsk, Roslavl, Smolensk and Ryazan, 50 vehicles have already been produced. According to socialist commitment targets, this should not have been accomplished before the opening of the 27th Congress of the CPSU. These first successes boosted workers' confidence, causing them to realize that the time of launching production can be reduced significantly. In 1986, they expect to manufacture 400 of these promising vehicles without slowing down the main production lines, and ways are already being sought for even topping that figure.

But the second stage, of course, is most important. It involves rebuilding and retooling production. Two large production halls are being built at the main factory in Moscow: pressing-welding section and body section. When these are put into service, the output of diesel ZIL vehicles will increase drastically. That means that even today skilled manpower has to be trained that would be capable of mastering modern technology. The temporary assembly stations used today will be replaced by automatic lines with robots, manipulators and programmed units. In view of that, young workers are toiling side-by-side with experienced factory veterans on the pilot production line.

According to foreman B. Bondarchuk, it took his team a whole week to assemble the first cabin. The team was mastering the process step-by-step, making sure they understood all the details. The know-how developed during this first stage will be put to good use when the time for mass production comes. Refining the details of the design and the production processes in building the new truck is the essence of the lead-time industrial strategy. All the shortcomings and flaws must be detected and eliminated at this early stage.



The factory is paying attention to timely training of manpower. A special course has been organized. Recently, it was completed by a group of workers from the press block, which included electricians, fitters and machine setters. The program of the course comprised the fundamentals of robotics, electronics and NC machine tools. Experienced electricians K. Krivko and A. Rivkin have visited the Volga Motor Works to get acquainted with the electronic systems of machine tools and robotics--equipment similar to what will be installed in the pressing-welding block.

Today, diesel-powered ZILs are counted in tens. Tomorrow the count will be in hundreds. And already, tens of thousands of these machines are contemplated. This approach is a pledge of accelerated growth rates, and that means that the future will come earlier than called for by the plans.

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CSO: 1829/63

## MOTOR VEHICLES AND HIGHWAYS

### CHANGES IN MOTOR POOL ADMINISTRATION, MANAGEMENT URGED

Moscow LENINSKOYE ZNAMYA in Russian 17 Dec 85 p 2

[Article by V. Smirnov, driver of Klin Mosoblavtotrans Motor Transport Enterprise, holder of Badge of Honor, in the column "We Discuss Precongress Documents": "Get Rid of Work Based on Primitive Methods"]

[Text] The author of the article believes that it is necessary to more boldly conduct work on concentration of motor transport at general-use enterprises.

We motor-vehicle drivers are gladdened by the fact that the draft of Basic Directions of USSR Economic and Social Development will establish for motor transport targets for volume of hauls rather than for freight turnover computed in ton-kilometers. First of all, many of our motor-vehicle enterprises literally chased after these ton-kilometers, the plan for which is easier to fulfill if machines are sent on long runs. We have taken freight to Moscow and to other cities, wherever you wish, and have served other of the country's regions. And in our town we look for profitable freight and runs. The needs of local clients, Klin plants and factories were poorly taken into account. As they say, we fulfilled the plan at any price. And we were among the winners.

The roots of old methods of management have remained in this year's plans. The same principle "from what was achieved," the same freight turnover with its ton-kilometers. Moreover, the plans are not linked to the existing motor-park structure, the number of motor vehicles, presence of personnel and so forth.

The 12th Five-Year Plan must be a breakthrough. It is quite correct that the draft of the new edition of the CPSU Program provides for a comprehensive solution to economic and social problems, an organic combination of long-term, 5-year and annual plans, raising of the scientific level planning and a decisive cutting off of any manifestations of a bureaucratic approach to the matter.

And here I would like to speak of something. We have an acute shortage of drivers. And without them we know that vehicles cannot go on a run. At the same time, drivers leave directly for departmental truck fleets of which there

are many in Klin. And what is it that attracts our former personnel? There, as a rule, discipline is weaker, and work is not taught as well. With us, a driver cannot go on the road without a pretrip medical examination. There it can be done. Our work has a basic pressure. There it is much less. But the pay is almost the same.

A case was described. A driver from an enterprise like ours switched over to a departmental truck fleet. A week later he came on a truck to show off to his erstwhile comrades: "My work now," he said, "is easy. They gave me a new machine direct from the plant, not like yours. It is true that in regard to wages, I lost a little, but then they promise an apartment in 2 years." (Our drivers do not expect new accommodations from an enterprise). Such is the "graphic" agitation that you get.

The draft of Basic Directions provides for the advantageous development of general-use motor transport, that is, of such enterprises as ours. It has been proved repeatedly that we, compared to departmental motor transport, work more efficiently. Sometimes twice and thrice as well. This is the rule, although there are exceptions.

It would be pertinent to bring to mind the recent past. During the 10th Five-Year Plan, the development of general-use motor transport in the Moscow area, as we know, proceeded very one-sidedly--basically through renewal and growth of the motor-vehicle park, while the production base of motor-vehicle enterprises and capacities of repair sectors actually did not grow. With time, the motor-vehicle park aged, it became necessary to repair vehicles more frequently, but there was not enough manpower for this. Our enterprise, for example, is meant to service and operate 200 medium-load motor vehicles, but we now have 250 vehicles, and among them are many large-load ones. Trailer operation is growing. We have an extreme need for comprehensive mechanization of mechanics' labor. And certification and rationalization of jobs is needed even more than in industry. It is necessary to precisely determine what production sectors should be like and what they should be equipped with.

I know that at conferences heads of motor-vehicle enterprises have repeatedly brought up the urgent question of weakness of the production base and of noncorrespondence of areas and capacities of enterprises to the number of motor vehicles and the structure of the motor-vehicle park. This question formerly was usually tried to be hushed up, but it has to be resolved. Look how far things have gone. Not only drivers and mechanics, but even specialists, are leaving for industrial enterprises with high standards of labor. They sometimes even change vocations. Our motor-vehicle enterprises must become exemplary not only in efficiency and promptness in operation of shipments but also in labor standards and in technical equipment of repair sectors. So that motor-vehicle drivers could see with their eyes that we have the best conditions. At the same time, as has already been done in the system of the RSFSR Ministry of Motor Transport, control needs to be strengthened over the operation of departmental motor transport, tracking of its work established everywhere and additions eliminated. So that a ruble is earned everywhere and not given for time spent at work. Let no loopholes be left for trips "on the side," for imaginary economy and stealing of fuel. The fact is

that under the presently existing situation, we do not always keep up with the competition of departmental motor-vehicle operations.

The times demandingly set the tasks of amalgamating small motor transport enterprises in the shortest possible time and examining the question of effectiveness of use of motor-transport resources in departmental motor-vehicle operations and adopting decisions in necessary cases of liquidation of unprofitable motor-vehicle operations regardless of their departmental affiliation. The question has come to a head of turning over to general-use motor-vehicle enterprises trucks, the production base, the worker personnel and the wage fund with imposition on them of obligations of serving enterprises and organizations that have turned over the trucks. Unfortunately, these problems are not being solved by us in Klin. For many departmental motor-vehicle drivers, work as before is free and uncontrolled: they themselves fill in trip records and on long trip contrive to drive empty, and the speed indicators on their machines are frequently out of order.

On the other hand, it is proper to say that in Moscow Oblast 10 years ago small unprofitable departmental motor-vehicle operations were liquidated. But many of them for all practical purposes had no bases and our motor-vehicle enterprises accepted "broken-down tubs." But inasmuch as we ourselves did not have everywhere a strong production base, this measure created serious additional complications at work at Mosoblavtotrans enterprises. For this reason, I believe that it would be beneficial for section VIII of Basic Directions, where it states: "To ensure the primary development of general-use motor-vehicle transport," should have added to it the line: "TO STRENGTHEN THE PRODUCTION BASE OF THIS TRANSPORT." Our motor-vehicle enterprises should be prepared for expansion of the motor-vehicle park, for receiving departmental machines and for servicing them.

If you were to look at statistical data, you would be able to see that the share of general-use motor transport in the total motor-vehicle park is growing insignificantly. As before, there are considerably more motor vehicles in departmental motor-vehicle operations than at enterprises of the RSFSR Ministry of Motor Transport. Even some of the once liquidated departmental motor-vehicle operations have been reborn and are alive again. And the management of this vast motor-vehicle park is frequently in the hands of nonspecialists, who are completely unacquainted with the economic foundations of motor transport. Motor vehicles and also fuel are used wastefully. This is why it is so important not to just develop general-use motor transport but to make sure that it expands the sphere of its shipments, assumes the servicing of enterprises having their own motor-vehicle operations, organizes its work more efficiently and in this way gradually excludes the need for departmental motor-vehicle operations.

In section VIII of the draft of Basic Directions ("Development of Transport and Communications"), it should be pointed out without fail at what a rate the share of departmental motor transport should proceed during the 12th Five-Year Plan and in the subsequent period. Why not designate specifically that by 1990, for example, the motor-vehicle park of general-use transport should consist of 40 or, let us say, 50 percent of the country's total motor-vehicle park. At the same time, it is necessary to improve the system of planning the

work of general-use motor transport so that we do not have consignments that are profitable or unprofitable in order to motivate raising the quality of transport services of all sectors of the national economy. We motor-vehicle drivers will not hold up the work. We intend to work on a shock basis.

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CSO: 1829/67

## MOTOR VEHICLES AND HIGHWAYS

### MINISTER ON MOTOR VEHICLE TRANSPORT IN KAZAKHSTAN

Alma-Ata AVTOMOBILNYY TRANSPORT KAZAKHSTANA in Russian No 1, Jan 86 pp 2-5

[Article by Kazakh SSR Minister of Motor Transport A. Karavayev: "For Motor Transport--Intensive Development"]

[Excerpts] Growth rates in the volumes of freight shipments and labor productivity increased significantly in 1985. Above the state plan, 31 million metric tons and 75 million passengers were transported, 4.3 million kilometers of paid taxicab runs were made, hauling and shipping services worth 834,000 rubles were rendered, and industrial production worth 2.6 million rubles was realized. The planned quotas for increasing labor productivity and reducing the production costs of shipments were overfulfilled. More than 7 million rubles of above-plan profit was received.

The industry also coped successfully with planned motor-transport development indices for the 11th 5-Year Plan as a whole. In so doing, the volume of freight carriages grew by 18.5 percent, freight turnover by 24.7 percent, bus transportation increased by 22 percent, and taxicab transportation by 21.8 percent.

Expanding the common-carrier sphere of activity, and increasing the quality of service to the national economy and the efficiency of rolling-stock utilization, have been provided for on the basis of developing and strengthening the enterprises' production base, raising production's technical level, organizing socialist competition for achievement of the greatest results, and improving employees' working and living conditions.

Decisive steps to accelerate scientific and technical progress, intensify production, and introduce everywhere the achievements of science, technology and advanced experience have been defined by the Ministry, and are being put into effect.

Centralized and containerized shipping, comprehensive hauling and shipping service to railroad terminals, with extensive use of turn-around [oborotnyye] trailers and semitrailers, operation of motor transport according to hourly schedules calculated by EVM [computer], the driver's brigade [team] contract, and other advanced forms of organizing the transport process are receiving accelerated development.

Steps taken by the Ministry for the production of 27,000 sided [bortovyye] and dump trailers and the equipment of 1,000 trucks with crane self-unloaders and freight-lifting tailgates have permitted bringing the volume of transport work being done by tractor-trailer rigs to 64 percent, as compared to 31 percent, of the country's common-carrier motor transport as a whole, and doubling containerized shipments during 1981-1985.

Quite a lot is being done to meet the steadily growing requirements of urban and rural populations for passenger transportation.

Constant attention is being devoted to matters of improving the operating mechanism, to extensive introducing of electronic computer technology and modern means of communication into production management, and to ensuring the economical use of labor, material and financial resources.

At the same time, the level of service to the national economy and the republic's population still does not meet current demands.

During recent years, increase in volumes of shipments has been provided chiefly through extensive [ekstensivnyye] factors. The quota for rolling-stock productivity expected by the 5-year plan for 1985 was fulfilled by only 92 percent in all. Growth rates in labor productivity were reduced to half as much as in the 10th 5-Year Plan. As a whole, the Ministry did not reach the planned level of motor vehicle and trailer output per line. Nor, for all practical purposes, did such most important indices of rolling-stock utilization intensity as the coefficients of carrying capacity and run utilization for trucks increase. We were unable to achieve uniform fulfillment of the plan by every enterprise.

Improvement of transport service to the national economy must be accomplished at the present time primarily on the basis of all possible increase in the efficiency of rolling-stock utilization, growth in every operational index and, on the whole, production to the average specified tonnage of motor vehicle carrying capacity.

The problem consists of providing for no less than 50 percent of increase in volumes of carriages through improving utilization of the means of transport, and 80 percent through raising labor productivity.

In accordance with requirements in the draft new edition of the Program of the Communist Party of the Soviet Union, it is necessary to overcome the existing tendency to reduce the capital-output ratio, and ensure the growth of this index by no less than 3-4 percent.

In solving these problems, a special position must be accorded to matters of steady growth in the indices of motor vehicle and trailer output per line.

For this purpose, it is necessary everywhere vigorously to carry out work to strengthen the production equipment base of motor transport enterprises, improve the quality of repair, and increase mechanical readiness of the rolling stock and achieve full strength in its driver manning.

Constant attention must be devoted to the all-around mechanization of motor-vehicle technical maintenance, the creation of specialized repair stations and spaces, the improvement of organization and technology in repair work, and the fullest use of available equipment and production areas.

It is necessary to finish certification of the work places as soon as possible.

Matters of improving the work of motor-vehicle repair shops, increasing the quality of major repair to motor vehicles and accessories, enlarging the inventory of manufactured and restored spare parts and strengthening technological discipline demand the most serious attention.

Achievements of scientific and technical progress are being used ever more widely to provide the most complete and highest quality transport service to all sectors of the national economy and the republic's population.

The most progressive centralized and intercity shipping, which permits substantially reducing transport expenses and freeing freight consignees of the obligations connected with freight delivery, is receiving extensive development. At present, centralized shipping is being carried out for 1,730 freight-making establishments. In addition, removal of goods and containers from 79 railroad stations, ports and wharfs of specialized enterprises is being provided, with performance of the full range of hauling and shipping operations for 6,500 freight consignees.

Extensive introduction of containerized shipping is having a favorable effect upon the quality of transport service.

The problems of radical improvement in transport service to the national economy require the raising of all operational work to a new qualitative level and more widespread and effective application of electronic computer technology in operational [operativnyy] management of the transport process. At all large freight-making establishments, it is necessary to organize operational shipping management centers (TsOUP's), which must take fully upon themselves the entire range of functions in organizing the shipping process, and ensure timely and knowledgeable solution of the problems arising from moment to moment and, on this basis, a substantial increase in rolling-stock productivity.

There is much to be done in further developing and improving containerized shipping. The share of this shipping, for the present, does not exceed half the possible volumes, and is only 12 percent for unitizing equipment [taro-oborudovaniye]. The majority of freight shippers still is not prepared to ship the product being produced in containers and unitizing equipment, does not have suitable packaging material, and, using the traditional packaging and existing production technology, does not permit the use of containers, pallets and unitizing equipment. Along with this, the lack of special areas for storing and processing containers, and of suitable ramps and docks, also is having a negative effect upon the effectiveness of introducing containerized and unitized [konteynerno-paketnyye] shipping. However, motor transport administrations are not showing the proper persistence in overcoming arguments of this kind. The problems in expanding containerized shipping of fruit and vegetable produce are being solved especially slowly.



Of 253 bread shops and departments in Alma-Ata, only 70, or 36 percent, are prepared for receiving and selling bread-bakery items in containers. Matters are no better in Ust-Kamenogorsk, Karaganda, Chimkent, Dzhambul, and a number of other cities.

This situation must be corrected without delay.

One of the firm directions in motor-transport production's intensification and increase in efficiency is more extensive application and improvement in the use of trailers.

Calculations show that, as compared to a single truck, a tractor-trailer rig with just one trailer provides for 1.8-fold growth in driver labor productivity, the saving of 7,000-8,000 liters of truck fuel, reduction by 31 percent in production cost, and the receipt of additional profit in the amount of 9,560 rubles.

Despite the obvious advantage of more intensive use of the tractor-trailer rig, its output coefficient remains extremely low in many motor-transport administrations. Such figures suggest a broad range of underutilization of potential reserves. Improving the utilization of trailers by just 1 percent in all will permit, throughout the Ministry as a whole, increasing the volume of transport work by 50 million metric ton-kilometers, and reducing expenses by a million rubles.

The steps taken by the Ministry have permitted equipping motor-transport enterprises with a sufficient quantity of trailer resources. At present, the task of ensuring their full utilization assumes major significance.

It is necessary to intensify the organizing work for completing the equipping of specialized repair spaces at all motor-transport enterprises and the re-equipping of diesel dump trucks for their use with trailers, to take additional steps to increase the volumes of shipping in turn-around trailers and semitrailers, and to increase the moral and material incentives to tractor-trailer-rig drivers, repair workers, and skilled craftsmen. No less important is timely and high-quality training of young drivers for work in tractor-trailer rigs.

A large reserve for improving the work of motor-transport enterprises is reducing the empty runs and downtimes of rolling stock. It is necessary to introduce efficient shipping routes more invariably, and to improve significantly their moment-to-moment dispatch planning and the operation of control and dispatch stations for the loading of empty motor vehicles. This is a very important matter, since every percentage point of reduction in empty runs for the Ministry as a whole ensures an almost directly proportional increase in labor productivity, reduces the production cost of shipping by 7 million rubles, and saves 11,000 metric tons of gasoline.

The role of common-carrier motor transport in support of agricultural production is growing every year.

Whereas less than 30 percent of grain-shipment volumes was delivered by the Ministry's motor-vehicle fleet several years ago, the figure was 60 percent last year.

In 1985, 50,000 trucks and 22,000 trailers from the Ministry's motor-transport enterprises participated in shipping the harvest, which is substantially more than in past years.

In the republic's fields, 2,200 composite harvesting and transporting brigades [teams] were at work, using the tractor-trailer and batch-output shipment systems. Grain was delivered to the majority of elevators by large-capacity tractor-trailer rigs according to hourly schedules calculated on a computer.

Many of our renowned heavy-equipment drivers [tyazhelovesniki] transported 5,000 and more metric tons of grain each during the harvest period, and a driver of the Yesil Motor-Transport Enterprise, Hero of Socialist Labor Nikolay Ivanovich Kireyev, 12,500 metric tons.

The work to strengthen the labor cooperation of motor-transport enterprises with agricultural and storage organizations should be conducted with even more vigor.

It is necessary to take every action to abandon motor-transport delivery beyond the republic's borders entirely, beginning as early as 1987. This task is entirely realistic. All that is required is to ensure general use of the accumulated advanced experience in transport service to combines and delivery of grain to storage points.

It also is necessary to improve radically the delivery arrangement for vegetables, potatoes, melons and pumpkins, and to expand, as much as possible, the use of special containers in these shipments. The task is to ensure that not a single kilogram of fruit and vegetable produce is lost in transport from the fields directly to the marketing network and the storage places.

One of the primary tasks confronting motor transport in the area of production intensification is economizing as much as possible in fuel and energy resources and other resources, and shifting the motor-vehicle fleet to economical forms of motor fuel.

During the last 5-year plan, the diesel fleet's share in transport work grew from 41 to 64 percent. Over 5,000 trucks and taxicabs were shifted to liquified and compressed gas. In the current year, the fleet of gas-cylinder motor vehicles will be enlarged by yet another 2,000 units. Part of the motor vehicles in Kustanay, Uralsk and Mangyshlak Oblasts will be shifted to compressed gas.

With growth by 24.7 percent in the volumes of freight transport work during the years of the 11th 5-Year Plan, the absolute consumption of motor-vehicle fuel, by standard calculation, grew by 5.5 percent in all, and a reduction by 18.2 percent was achieved in its relative consumption.

We succeeded in achieving such results by applying resource-saving transport technology.

What does this mean in practical terms?

Over 20,000 large-capacity trucks now are operating in the industry in the make-up of tractor-trailer rigs, 4,000 trucks with 2 or more trailers, and over 400 drivers carry out shipments with tractor-trailer rigs having freight capacities up to 100 metric tons. Every year, 100,000 metric tons of fuel and 25,000 tires are saved, and the requirement for driver personnel is reduced by 20,000 persons, just through the mass use of this equipment.

In the 11th 5-Year Plan it is planned to increase the number of tractor-trailer rigs, and free 7,300 more drivers on this basis.

A future task is making maximum use of trailers in the composition of tractor-trailer rigs, and further reducing the consumption of fuel, spare parts and tires on this basis.

The application of advanced forms and methods in organizing freight shipping gives good results in the saving of resources, especially in grain-harvesting work. Application of the tractor-trailer and batch-output systems permits increasing motor-vehicle productivity 3-4-fold, and correspondingly reducing the requirement for motor vehicles, lowering the production cost of shipments by 30 percent, and increasing the output of combines by 15-20 percent.

During the last grain-harvesting period, 15,500 combines, 24,000 motor vehicles and over 18,000 trailers operated according to the progressive technology. This permitted reducing the requirement for motor vehicles to service the combines by 11,500 units, saving about 4,000 metric tons of motor fuel, and, because of the reduction in motor-vehicle transfers and the lowering of production costs for shipments, saving over 7 million rubles.

The use of polyurethane foam to treat truck and trailer bodies in order to eliminate grain losses in transport also furthered the economizing. The annual economic impact of treating 40,000 motor vehicles is over half a million rubles.

In the 12th 5-Year Plan, we must bend all our efforts to the end that advanced resource-saving work methods find universal application in gathering the harvest.

The use of containers and pallets, self-loading container carriers, and trucks with freight-lifting tailgates also permits saving more than 1.3 million rubles of national economy funds annually.

Further introduction of these progressive technologies of freight delivery remains a most important direction in our work.

Since the beginning of the 12th 5-Year Plan, the industry has shifted into a broad-scale economic experiment. Under the new conditions, the responsibility of motor-transport enterprises for fulfilling shipping plans in accordance with concluded contracts is being increased. The rights of labor collectives to use production-development funds and sociocultural measures for the technical re-equipping of enterprises and the construction of housing and other structures are being broadened considerably.

The task consists of ensuring the maximum use of advantages in the new management system, tying the workers' moral and material incentives more closely to the end results of their work, and achieving the enhancement of industry and intraorganizational accountability.

In the report of comrade M.S. Gorbachev, CPSU Central Committee general secretary, at the conference on matters of scientific and technical progress, it was noted that "the catalyst of modern scientific and technical progress, as is well known, is microelectronics, computer technology and instrument making, and the entire information-science industry. These have a decisive influence upon the efficiency of labor resources and technological systems in all industries." Computerization has become one of the chief ways of combining the achievements of the scientific and technical revolution with the advantages of the planned socialist economy. This is especially applicable to motor transport, which is marked by great developmental dynamism, rapidly changing shipping conditions, and a large number of locally operating transport means. Therefore, paramount attention should be devoted to the development of various kinds of automated systems, based upon the extensive introduction of computer and microprocessor technology and means for gathering and transmitting information, in the series of steps being taken for further improving the management and increasing the efficiency of motor-transport work.

At the same time, the potentials of modern computers are being insufficiently utilized in the industry thus far, especially in the matter of moment-to-moment management of the transport process. Manual processing of massive information predominates to the present time at many enterprises. Not all ASU [automated management system] tasks are carried out at the required qualitative level, which reduces the effectiveness of their outcomes.

More attention should be devoted to further developing the industry's automated management system for the purpose of providing computer information services to all enterprises in the very near future. It is necessary to develop and introduce technological management systems for the transport process and the repair and technical maintenance of motor vehicles more actively.

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MOTOR VEHICLES AND HIGHWAYS

UKSSR COUNCIL OF MINISTERS DECREE ON ROADBUILDING

Kiev PRAVDA UKRAINY in Russian 8 Jan 86 p 3

[Report on work of the Presidium of the UkSSR Council of Ministers in the column "At the UkSSR Council of Ministers": "To Develop a Network of Highways"]

[Text] The Presidium of the UkSSR Council of Ministers studied the question of measures for further developing the network of general-use highways and improving services for drivers and passengers.

It is pointed out in the adopted decree that work is going on in the republic on improving road service, developing a network of hard-surface highways and upgrading their transport and maintenance qualities. During the years of the 11th Five-Year Plan, the total length of first-class roads almost doubled. Construction was completed of approaches to all the central buildings of kolkhozes and sovkhoses. In road work, wider use is being made of secondary resources, byproducts and industrial waste materials. Local roadbuilding materials are being sought out and a production base for road organizations is being developed.

At the same time, the level and rate of development of the road network does not meet the growing requirements of the economy. The UkSSR Ministry of Highway Construction and Maintenance permits violations of construction and repair technology, turning over of jobs with unfinished work and a low level of highway maintenance. In many cases, required highway signs are lacking and reconstruction of roads and bridges is proceeding at an inadequate rate. Roadbuilding equipment and motor transport are not always used effectively.

Highways still have a low level of services for drivers and passengers, technical support of means of transport is not organized properly, and there is an inadequate number of dining places, hotels, motels and other facilities.

The UkSSR Council of Ministers has charged the UkSSR Ministry of Highway Construction and Maintenance and ispolkoms of local soviets of people's deputies to ensure in the 12th Five-Year Plan further improvement of the network of general-use highways and to build and reconstruct 11,000 kilometers of hard-surface highways, to basically complete construction of approaches to all rural residential centers, to strictly observe construction and repair technology, not to permit turning over of jobs with unfinished work, to

increase the volume of rebuilding of capital bridges not meeting the loads and clearances of modern means of transport and also to complete rebuilding of wooden bridges into bridges of the major type.

Measures were outlined for broader enlistment of material, labor and financial resources of enterprises, organizations and kolkhozes for building and rebuilding of general-use highways, strengthening control over fulfillment of existing rules of use of roads and road structures and improvement of the sanitary condition of roads and their shoulders.

Oblispolkoms together with the UkSSR Ministry of Highway Construction and Maintenance, the UkSSR Ministry of Housing and Municipal Services, the UkSSR Ministry of Trade, the Ukrainian Cooperative Union, the UkSSR Main Administration for Foreign Tourism, the UkSSR Ministry of Motor Transport and other interested ministries and departments and the Ukrainian Republic Avototekhobsluzhivaniye Special Administration have been instructed to provide for further fitting out of principal highways with facilities and road services and in particular to build during the 12th Five-Year Plan 111 gas filling stations, 16 service stations, 11 hotels, motels, dining places and other facilities.

Measures were approved for improving the organization and material-technical support of construction, reconstruction, repair and maintenance of highways for 1986-1990.

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CSO: 1829/67

## RAIL SYSTEMS

### RAILWAYS MINISTRY PERFORMANCE STATISTICS FOR 1985, 1981-1985

Moscow GUDOK in Russian 25 Jan 86 pp 1-2

[Unsigned article based on materials of the Statistical Accounting and Reporting Administration of the USSR Ministry of Railways: "A Result of Creative Labor--Survey of Railroad Transport Work in 1985 and for the 11th Five-Year Plan as a Whole"]

[Text] Five-year plans. They are like huge steps on the main route in creation of paths in the country's economic and social development. And now another step has been taken, another stage in the history of our Motherland has been completed. The 11th Five-Year Plan is over. What railroad workers accomplished in 1985 and in the course of the entire 5-year plan has been totaled up.

Transport's material and technical base was further developed. Much was done for boosting the throughput and carrying capacity of lines and expanding and improving the structure of the rolling-stock park. A number of social measures were implemented. Material well-being was upgraded, and working and living conditions of railroad workers were improved.

By the end of the 11th Five-Year Plan, the operational length of the system exceeded 145,000 kilometers. In the 5 years, 3,200 kilometers of new lines and 4,000 kilometers of secondary track were put into operation. A total of 5,600 kilometers of road were electrified and 12,000 kilometers were equipped with automatic blocking and centralized traffic control. Approximately 36,000 switches were included in electrical centralized control. The railroads in the Urals, Siberia and the Far East were developed and strengthened at an accelerating rate.

Rates in the development of the material base were highest in the last 3 years of the 5-year plan. In 1985 alone, without taking the Baykal-Amur Mainline into consideration, capital investment was assimilated in the amount of 5,482 million rubles, which is 4.6 percent greater than in 1984. At facilities of the Baykal-Amur Mainline, 16.3 percent more capital than planned was utilized. But still the plan of construction and installation work was fulfilled as a whole only 96 percent. Organizations of the USSR Ministry of Transport



Construction did not utilize 69 million rubles of the funds allotted for these purposes. At the same time, subdivisions of the USSR Ministry of Railways surpassed their targets by 0.2 percent.

During 1985, 1,200 kilometers of new lines went into operation, 769 kilometers of secondary track were built. Sections with a total length of 1,444 kilometers were electrified. Almost 2,600 kilometers were equipped with automatic blocking and centralized traffic control.

The capital-construction annual plan was successfully fulfilled by the Baltic, Transcaucasian, Central Asian and Baykal-Amur railroads. At the same time it was only fulfilled from 73.8 percent to 84.1 percent by the East Siberian, Kemerovo, Transbaykal, Kuybyshev and Southeastern railroads.

Marshalling yards were intensively developed, the technical equipment of track and other sectors of the operation was upgraded.

FREIGHT TURNOVER increased by 8.1 percent during the 11th Five-Year Plan, or by 279 billion ton-kilometers. Moreover, in the first two years, the growth was insignificant--0.7 percent, but in the last 3 years it increased by 7.3 percent. The accelerated development of productive forces in the eastern regions significantly changed transport economic connections and consequently the directions of freight traffic volume. It grew particularly intensively on the exiting lines from the eastern regions and Kazakhstan to the west.

In 1985, freight turnover amounted to 3,719 billion tariff ton-kilometers, which is 80 billion ton-kilometers, or 2.2 percent higher than the 1984 level. At the same time, about 55 percent of freight turnover's growth produced an increase in the volume of shipments. The average distance of freight transportation compared to the preceding year grew by 10 kilometers. Delivery distance of refractory materials, ore, ferrous metals, mineral fertilizers and grain shipments increased significantly.

PASSENGER TURNOVER grew by almost 32 billion passenger-kilometers and in 1985 exceeded 374 billion passenger-kilometers, which is 2.7 percent more than the 1984 level. The 1985 planned target for this indicator for the system as a whole was fulfilled 101.1 percent. It was fulfilled on 26 railroads. The highest growth rates were in Kazakhstan, Siberia and the Far East as well on the Sverdlovsk, Central Asian, Moldavian, Odessa, Lvov, Southwestern and Belorussian railroads. At the same time, the Baltic, Southern, Dnepr, Azerbaijan, Volga and Kuybyshev railroads failed to fulfill the plan. Serious defects in the organization of servicing passengers at railroad stations and on trains failed to be eliminated.

Railroad workers honorably fulfilled the 5-year target for the planned volume indicator. THE PLAN OF TOTAL NATIONAL-ECONOMIC FREIGHT SHIPMENTS was completed ahead of schedule on 27 December. A total of more than 19.1 million tons of freight were hauled during 1981-1985. This is 642 million tons greater than during the 10th Five-Year Plan and exceeds the plan target by 32 million tons.



Shipments of chemical and mineral fertilizers increased most significantly, the increase exceeded 105 million tons, that of petroleum freight--by 92 million tons, of grain--more than 35 million ton and of ferrous metals--34 million tons.

But for a number of important technical-economic indicators, 5-year targets were not completely realized primarily because of a low work level during 1981-1982.

The past, and final year of the 11th Five-Year Plan was a difficult one for railroad workers. The difficult winter and serious defects in preparing for it extremely complicated the situation and caused a sharp drop in work during the first 4 months. But transport workers found the strength in themselves to extricate themselves from an extremely difficult situation with honor. From May through December such a fast work pace was set that it was possible not only to make up the indebtedness attained in the initial part of the year, but even to complete the annual plan of freight shipment ahead of schedule. The total volume of shipments exceeded 3,941 million tons. This is 36 million tons or 0.9 percent more than the plan and exceeds by 48 million tons or by 1.2 percent, the preceding year's level. The plan was fulfilled for 30 of 42 planned commodities.

The plan of total shipment of freight was fulfilled by all the railroads. At the same time, some of them, despite significant overfulfillment of the plan, did not fulfill the prescribed products list, which affected the operation of industrial enterprises negatively.

A substantial contribution to the general success was made by such railroads as Kemerovo, which transported more than 4.2 million tons above plan, the West Siberian--2.6 million tons, Krasnoyarsk--2.5 million tons, the Far Eastern--1.3 million tons, the Tselin--3.8 million tons, the Central Asian--1.9 million tons, the Moscow--1.5 million tons and the October--1 million tons.

Shipments increased most significantly for anthracite coal, the increase amounting to 21 million tons, mineral fertilizers--6.4 million tons, ferrous metals--4 million tons, cement--1.7 million tons, nonferrous ores and raw sulfur--1.2 million tons and grain shipments--4.6 million tons. At the same time, the plan for shipping anthracite coal was overfulfilled by 13.4 million tons, all types of ore--by 3 million tons, ferrous metals--by 4.8 million tons, construction freight--by 24.2 million tons, chemicals--by 3.3 million tons, potatoes, vegetables and fruits--by 1.8 million tons, motor vehicles--by 76,000 car loads, food products--by 42,000 car loads, general metal goods--by 75,000 car loads, containerized freight--by 67,000 car loads.

THE LEVEL OF SHIPPING AND GRADUATED ROUTING was 0.2 percent lower and amounted to 43.6 percent. Routing of shipments of anthracite coal, shale, fluxes, ore, iron and managanese, nonferrous ore, mineral fertilizers and petroleum shipments grew at a fast rate. At the same time, in the case of shipments of grain, cement, timber, agricultural machinery, imports and a number of other freight, the routing level has been low.

Routing was increased significantly on the Baltic, Belorussian, Northern, Transcaucasian, Alma-Ata, Kemerovo, Krasnoyarsk And Baykal-Amur lines. But on the Southwestern, Volga, East Siberian and to a lesser degree on the Southern, Dnepr, South Ural and West Siberian railroads, the relative share of routing was reduced.

**STATIC LOAD.** The load-carrying and seating capacities of rolling stock were considerably better utilized. The average load-carrying capacity of railroad cars provided for loading increased over the 5-year period by 1.7 percent and the static load by 3.8 percent. Particularly significant growth was achieved last year--1,290 kilograms. At the same time, for basic mass shipments comprising more than two-thirds of total shipments, static load grew by 1,790 kilograms and for the rest--by 550 kilograms.

All the railroads fulfilled the static-load plan targets. On 13 of them, it was exceeded by more than 1 ton. The greatest results were achieved on the Dnepr--more than 2,410 kilograms, Donetsk--2,030 kilograms, Tselin--1,590 kilograms, the Baykal-Amur--2,730 kilograms and Kemerovo--more than 1,530 kilograms.

A number of other indicators of rolling-stock use improved in 1985. Car layovers for freight operations were reduced. Railroad-car and locomotive productivity improved and train weight increased significantly. On the Belorussian, South Urals, East Siberian, Far Eastern, Baykal-Amur, Tselin and Krasnoyarsk railroads, not only were indicators of car use improved, but plan targets were overfulfilled.

Average daily locomotive productivity was increased for the system as a whole by 0.4 percent, but the target was not fully realized. This was due primarily to a reduced average daily run reduction of 6.2 kilometers. Locomotive productivity was higher on 16 railroads, but the plan was fulfilled only on the October, East Siberian and Baykal-Amur railroads.

Heavy-weight traffic was further developed. The average weight of a train for the system as a whole in 1985 amounted to 3,033 tons. As a result, it was possible to assimilate practically the entire freight-turnover growth as a result of its 78-ton increase over 1984. The 100-ton limit was exceeded on the October, Gorkiy, South Urals, Kemerovo, East Siberian and Baykal-Amur railroads. The plan for this indicator was not fulfilled on the Alma-Ata, Southwestern and Azerbaijan railroads. As a result of the increase in weight and length of trains in 1985 together with growth of transit railroad-car traffic volume, the number of trains dispatched from marshalling yards was reduced by 42,000.

Last year, it was not possible to achieve efficiency of movement. Dispatching of freight trains and their tracking according to schedule was worse than in 1984 by 1.1 percent. Schedule fulfillment was improved only on 8 railroads, first of all on the October, Southern, West Kazakhstan, South Urals and Kemerovo.

The passenger-train traffic schedule was better in terms of tracking on the Azerbaijan, Central Asian, West Siberian, Kemerovo and East Siberian

railroads. It was fulfilled by 93 percent for the system as a whole. This is 2.5 percent less than in 1984. The worst situation was on the Volga and Southeastern railroads.

**CONTAINERIZED SHIPMENTS.** In the course of the five-year plan, 229 million tons of freight were conveyed in containers. This is 2.2 percent more than planned. Five million tons were shipped above plan. In 1985, as opposed to the plan of 50.5 million tons, 52.2 million tons were shipped. The plan was exceeded by 3.4 percent. Almost 20 million tons, or more than 37 percent of the total volume, were shipped in large-capacity containers.

The plan for containerized shipments was fulfilled by all the railroads with the exception of the Donetsk, Volga, Central Asian and Far Eastern railroads.

A big step forward was taken in the development of packet-type shipments. The 5-year plan was fulfilled ahead of time in the beginning of December. The average annual growth rate was 5.5 percent. But the annual plan was not fully realized. A total of 2.1 million tons less were shipped in packets than designated, mostly because rolled ferrous metals did not arrive for shipment and packet materials were not delivered to a number of ministries.

The division for mechanized loading and unloading operations fulfilled the plan for general freight handling for the year past by 100 percent, and for the five-year plan as a whole by 100.2 percent.

**SUBDIVISIONS OF THE MAIN ADMINISTRATION OF INDUSTRIAL RAILWAY TRANSPORT** fulfilled the targets of the five-year plan for all basic technical-economic indicators. The prescribed volume of shipments was overfulfilled by 2.1 percent (52 million tons of freight were shipped above plan). The plan of materials handling operations was fulfilled 101.7 percent (30 million tons were handled above plan). An additional 29.5 million tons of profit were obtained. The target was exceeded for growth of labor productivity. 1985 was completed successfully. A total of 11.8 million tons were transported above plan. An additional 4.2 million tons were handled, which is 1.2 percent more than was assigned. Unfortunately, railroad-car layovers for enterprises of Promsheldortrans exceeded as a whole the norm by 0.77 hour and for the Armenian Regional Association--by 4.65 hours, Kuybyshev--by 3.15 hours and Sverdlovsk and Volgograd--by 2.36 hours. The subway transport plan of the last year of the 11th Five-Year Plan was fulfilled ahead of schedule and exceeded it by 1.7 percent. Compared to 1984, transportation increased by 4.3 percent, or almost by 182 million passengers. Transportation costs were lower compared to the plan by 2 percent, while labor productivity was higher than the target by 5.2 percent. Subway workers overfulfilled the target of the five-year plan for all technico-economic indicators.

The **SUBWAY** transportation plan for the final year of the 11th Five-Year Plan was fulfilled ahead of schedule and exceeded it by 1.7 percent. Compared to 1984, transportation increased by 4.3 percent or almost by 182 million passengers. Transportation costs were reduced by 2 percent compared to the plan and labor productivity was increased above the target by 5.2 percent. Subway personnel exceeded the targets of the five-year plan for all technical-economic indicators.

INDUSTRIAL ENTERPRISES OF THE USSR MINISTRY OF RAILWAYS realized production of more than 2,432 million rubles, or 1.5 percent more than the plan, including plants of the TsTVR [Main Administration for the Repair of Rolling Stock and the Manufacture of Spare Parts]--1,818 million rubles or 1.4 percent more than designated. Plants of the Signals and Communications Main Administration as well as industrial enterprises of the railroads also fulfilled the plan. Production was 36.1 million rubles above plan. At the same time, if adopted commitments for contractual deliveries are taken into consideration, the sales volume of production for the Ministry of Railways as a whole was underfulfilled by 2.1 percent, including for TsTVR plans--by 2 percent. Of the 17 plants of the Signals and Communications Main Administration, 7 failed to fulfill assigned targets.

The annual plan for repair of electric locomotives, diesel locomotives, electrified sections, diesel trains, 5- and 12-car refrigerated sections, self-contained refrigerator cars and subway cars was fulfilled. The repair program for freight and passenger cars was carried out at a lower level than in 1984. The Barnaul Plant was short 2,130 freight cars, the Panyutino Plant--1,504 cars, the Ordzhonikidze plant--1,420 cars and the Kanash plant--1,392 cars. The Voronezh plant failed to deliver for the plan 346 passenger cars, the Ulan Ude--314 cars, the Ordzhonikidze plant--227 cars and the Zhmerinka plant--191 cars. A lag occurred in the manufacture of individual frogs by the Dnepropetrovsk and Orenburg plants and containers by the Gryazi-Orlovskiy plant. Railroads fell short in getting roller wheel pairs and a number of other components and spare parts.

The energetic introduction of new equipment, advanced technology, the spread of brigade forms of labor organization, holding two jobs, expansion of service zones, wide-scale employment of the experience of leading collectives and improvement of forms and methods of socialist competition have made it possible to assimilate the entire growth of shipments with practically no increase in the number of personnel. While in the 10th Five-Year Plan, the contingent of workers employed in shipments grew by 5.9 percent, for the 11th Five-Year Plan the figure was only 0.1 percent. And this with a growth in the volume of cited production of more than 8 percent.

During 1984 and 1985, it was possible to release 19,000 persons from the operating contingent. On the Belorussian Railroad personnel were reduced by 7.6 percent and on the Moscow Railroad--by 5.3 percent. At the same time, the Central Asian Railroad's operating personnel increased by 8.2 percent, on the Azerbaijan Railroad--by 7.6 percent and on the Far Eastern--by 4.5 percent.

In the last 3 years of the five-year plan, it was possible to boost LABOR PRODUCTIVITY on the railroad system by 9.1 percent compared to a target of 6.1 percent. In 1985, it grew by 3.1 percent compared to the target of 2.1 percent. But the drop that occurred in the first 2 years of the five-year plan did not allow attainment of planned advances. The five-year plan's targets were overfulfilled for this most important economic indicator by collectives of 17 railroads, including the Belorussian--by 15.6 percent, the Baltic--by 7.1 percent, the North Caucasus--by 6.7 percent, the Transbaykal--by 6.1 percent, the Moscow--by 5.9 percent and the October--by 4.6 percent.

In 1985, 23 railroads fulfilled the plan. On the Belorussian, Krasnoyarsk and East Siberian, socialist commitments were significantly overfulfilled. At the same time, on the Kuybyshev, Odessa, Southeastern, Lvov, Alma-Ata and the Central Asian railroads, actual growth of labor productivity last year was below the planned level. The first three of them failed to even reach the 1984 level.

AVERAGE MONTHLY WAGES of workers employed in transportation amounted to 215.5 rubles in 1985. Growth for the year was 2.3 percent. Both for the system as a whole and for the majority of the railroads, a proper correlation of growth rates of labor productivity and wages was ensured. At the same time, analysis shows that on a number of railroads and at a number of enterprises, defects in the labor organization of workers are slow in being eliminated, and the number of work stoppage, overtime work and violations of work and rest regimes of locomotive brigades has been growing.

The new year, 1986, began the 12th Five-Year Plan. And in order for the work to proceed successfully, it is very important to deeply analyze work results at each enterprise and to determine concrete ways of regular fulfillment of plan targets. Intensification of production, all-out raising of its efficiency, consistent accomplishment of programs of scientific and technical progress and a strict economical regime form the true path to successful fulfillment of tasks set for transport workers by the party in the draft of Basic Directions of Economic and Social Development of the Country. And the very first job is to fulfill the 2-month plan ahead of schedule with high technical-economic indicators and to greet the 27th CPSU Congress in a worthy manner.

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CSO: 1829/61

JPRS-UTR-86-005  
7 April 1986

## RAIL SYSTEMS

### MINISTRY CHIEF ENGINEERS ELEVATED TO 1ST DEPUTY CHIEFS

[Editorial Report] Moscow GUDOK in Russian 21 February 1986 carries on page 2 an official USSR Ministry of Railways announcement revealing new authority and responsibility for chief engineers in its administrative structure. According to new decrees, the chief engineer of each main administration, railroad, railroad division and enterprise is promoted to the post of 1st deputy chief of the indicated organization. Furthermore, the chief engineer exercises the authority of chief in dealing with issues concerning scientific and technical progress. These 1st deputy chiefs/chief engineers are tasked with "raising the technical level" of their respective organizations.

CSO: 1829/88

## RAIL SYSTEMS

### WESTERN BAM ELECTRIFICATION PROGRESS

Moscow GUDOK in Russian 29 Dec 85 p 1

[Article by BAM correspondent A. Krivoy, Severobaykalsk: "Electric Locomotives on the BAM--From the Scene of Events"]

[Excerpts] By Siberian standards, the distance of 350 kilometers from the ancient town of Ust-Kut, which is on the Lena, to Baykal is not great. But even about ten years ago, to encounter a traveler in this area was an event. But now the names of the BAM stations--Zvezdnaya, Niya, Kirenga, Ulkan, Kunerma, Severobaykalsk...--are well known throughout the country.

Trains pass along the BAM to the west with timber and to the east with building materials. The section of the main line from Lena Station to Kunerma has already been in permanent operation for five years. This is the Irkutsk section of the route. The last 57 kilometers before Severobaykalsk pass through the territory of Buryatiya. Both sections are joined by the seven-kilometer Baykal Tunnel, drilled into the thick of the granite by the mountaineers of Bamtonnelstroy [BAM Tunnel Construction] on the eve of the opening of the 26th CPSU Congress.

Today, in preparing for a worthy meeting of the next 27th Congress, the builders and operators of the Irkutsk and Buryat sections of the BAM report a new victory: the document has been signed accepting the first stage of the 57-kilometer Buryat section line into permanent operation, and the electrification of the entire section from the Lena to Baykal has been completed. An electric locomotive delivered the first railroad consist to Severobaykalsk Station.

Already last year, immediately following linking up with the main BAM line, the slogan "The Golden Link!" was replaced by another: "Electrification!" Construction worker detachments returned to the starting lines of the late 1970s and early 1980s in order to begin construction of the "second story" of the Northern Transsiberian. The principal volume of work then fell on the shoulders of two general contractor trusts--Lenabamstroy [Lena BAM Construction] and Nizhneangarsktransstroy [Nizhneangarsk Transportation Construction]. Later more than ten subcontractor organizations were attached to them. The operational workers' collective of the Severobaykalsk Division made a substantial contribution to the overall cause.



More than ten thousand supports were installed along the railroad right of way and the development of all railroad stations and sidings was executed. A catenary system was installed on the entire length of the line. Eight major traction substations were built and started up. The first stage of a locomotive depot and a major boiler room in Severobaykalsk were placed in operation. Dozens of other facilities have been delivered. The start-up complex numbers approximately 150 industrial-purpose structures that provide the electrification for the Lena-Severobaykalsk section.

The line will still be broken in for a short time, but those facilities and systems upon which the approach of today's holiday depended have already been turned over.

At the meeting of two five-year plans, still another line is written in the history of the construction of the main line of the century. But only a portion of the work is finished yet. Ahead is the preparation for turning over the whole Baykal-Amur Line to permanent operation. The total length of the line is 1,250 kilometers in the Severobaykalsk Division alone. With the arrival of an electric locomotive in Severobaykalsk, only 350 have been brought to modern operating conditions, and of these 90 kilometers with ten stations and sidings still have to be finished.

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CSO: 1829/59



## RAIL SYSTEMS

### BAM'S LARBA--UST-NYUKZHA SECTION OPERATIONAL

Moscow GUDOK in Russian 3 Jan 86 p 2

[Article by GUDOK correspondent I. Krasikov, Larba--Ust-Nyukzha: "Halfway to Udokan--The Larba--Ust-Hyukzha Line of BAM is Placed in Permanent Operation"]

[Text] Tynda is separated from Ust-Nyukzha by a little more than 340 kilometers, 130 of which (the Tynda--Larba section) were accepted into permanent operation at the end of 1984. The rest was presented for turnover on the last day of 1985.

The start-up complex of the Larba--Ust-Nyukzha section includes approximately 600 facilities costing several hundred million rubles. Four new stations have been included in the country's railroad network--Larba, Lopcha, Chilchi and Ust-Nyukzha. New schools, kindergartens, residences and boiler rooms have been built.

The first stage of the turnaround locomotive depot and the railroad car technical inspection point entered service in Ust-Nyukzha, along with a locomotive crew rest home in Lopcha, and a workers' dormitory in Larba. All stations provide for a stable energy supply. An automatic blocking system and electrical centralization of signals are operative on the section. Four new main stations will be able to accommodate hundreds of passengers. All railroad facilities and enterprises are equipped with a staff that was substantially replenished by regular construction workers. A portion of the Fifth All-Union Detachment of Young Railroad Workers is also already laboring here.

The operational workers who accepted the section preserve fine memories of many construction subunits who included their own labor in the preparation of the start-up complex. They speak with gratitude of the emissaries of the Urals, the people from Sverdlovsk and Chelyabinsk, whose work on the BAM was always distinguished by excellent quality and a rapid pace. It was their hands that erected the school and kindergarten buildings in Ust-Nyukzha and put up the main station in Larba in record time. The contribution of collective SMP-573 to the construction of the capital facilities of the new line also merits good words.

It can be said that the Baykal-Amur is now halfway to the underground storerooms of Udokan. Less than 300 kilometers remained to Chara, which in the

future will become the center of the Udokan Territorial Industrial Complex. But with today's acceptance of the next 207 kilometers of the permanent route into operation, the BAM railroad workers have expressed their hope that the final sections will be prepared for permanent operation with higher quality and in more complete fashion.

First and foremost, the disruption of the residential construction program should be included in the shortcomings. The operational workers have not yet received almost a third of the housing planned for delivery. The new homes of more than a hundred families of line railroad workers have been put off for one or two months. Three out of four boiler rooms were not prepared for operation at sufficiently high quality.

Much incomplete work was revealed in the preparation of cleaning structures and engineer communications. Tyndatransstroy [Tynda Transportation Construction] Trust, the general contractor, did not fulfill its socialist obligations in November for the early delivery of the start-up complex on this line and was also not able to straighten out completely the state of affairs in December.

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## RAIL SYSTEMS

### OFFICIALS EXPLAIN CONTINUING DELAYS IN BAM CONSTRUCTION

Moscow GUDOK in Russian 18 Feb 86 p 2

[Report especially for GUDOK by TASS Correspondent V. Biryukov on comments by Baykal-Amur Mainline officials: "BAM: The Lessons of Startup"]

[Text] Tynda--It is already February, but workers of the Baykal-Amur Mainline are still continuing to work on the projects started up last year, clearing away unfinished work. The collective of the "Tyndatransstroy" Trust, which promised to turn over the line from Larba to Ust-Nyukzha in the track's Central Section for continuous operation by the 68th anniversary of Great October, did not fulfill its commitments. And the collectives of "Lenabamstroy" and "Nizhneangarsktransstroy" trusts did not keep their word on electrification of the 343-kilometer leg from Ust-Kut to Severobaykalsk in the BAM's Western Section. Only half of the line had been shifted to electrical traction by the end of December.

What is the reason for the interruption permitted by the BAM workers in the startup program? What lessons can be learned from it? Do the project's managers have a clearly thought-out strategy for the completing period which rules out a repetition of a situation like this? After all, it is well known that the plan of the Basic Directions for Economic and Social Development of the country calls for putting the entire mainline into continuous operation as early as the end of the current five-year plan.

V. Gorbunov, chief of the Baykal-Amur Mainline; B. Prokofyev, manager of the Baykal-Amur Office of the Stroybank [Bank for Financing Capital Investments]; and K. Mokhortov, deputy minister of transport construction and chief of the Glavbamstroy [Main Administration for Baykal-Amur Mainline Construction], answer these questions for a TASS correspondent.

"The startup program last year was very intensive," stated V. Gorbunov, chief of the line. "Construction workers had to put about 600 kilometers of the mainline into operation, with residential settlements and station complexes, and electrify over 340 kilometers of the line. Far from everyone coped with this task. The military railroad workers and supervisory organizations worked well on the Urgal-Fevralsk line, which was accepted by the state commission practically without comments. But how was the Larba to Ust-Nyukzha leg in the Central Section to be accepted when housing, social and cultural projects, and one of four stations were not readied and a number of engineering structures in settlements and at stations were not begun? The "Tyndatransstroy" Trust had so-called objective reasons, of course: the Shimanovsk Construction Industry Complex delivered structures poorly, and other plants shipped part of the equipment literally in the final days of December. But after all, construction workers in the Eastern Section found themselves in the same situation, although they were able to concentrate all their efforts and resources to carry out the principal task.

Nevertheless, we accepted this complex for operation under the chief of Glavbamstroy's personal guarantee that the operations remaining would be absolutely completed. We reasoned this way: since many projects are already being maintained by our specialists, and the line, even with imperfections, will be able to provide for the freight volumes being planned for today, we can make a compromise. We were also guided by the same reasoning in acceptance of electrification in the BAM Western Section.

Necessary comment: The customer conceded not only because Glavbamstroy subunits did not fully cope with the year's startup program for the certain objective reasons which have already been cited. The blame for it is here as well--the management of BAM construction was very late in presenting the startup complexes for construction workers. More precise specifications on them were made even in December. Hence the poor provision of planning estimates and the tardy requisitions for technical equipment, financing of operations and material and technical supply. So the blame for the situation which took shape by the end of the year may be divided equally--the customer as well as the construction workers proved to be unprepared for the increased volumes of work.

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"Yes, laying the main track for the mainline has been considered for many years to be the basic task for the management of construction and the collectives of the Glavbamstroy," states B. Prokofyev, manager of the Stroybank office. "They handled it splendidly, linking up BAM's track a year ahead of schedule and opening through traffic for operating trains from Ust-Kut to Komsomolsk-na-Amure. In giving credit to the labor exploit by participants in the project, it is necessary to note, however, that laying the track is a highly mechanized process which provides good 'volume.' The next stage--industrial and civil construction--is more complicated: The labor-intensiveness of operations is increased and the mix of products shipped is

expanded significantly. This has required retraining of persons, technical re-equipment, and reorientation in the system of organizing production, supply, and the like. Such reorganization, unfortunately, has not been carried out to the full extent, which also has had an effect on fulfillment of the startup program.

"It is necessary to admit that Stroybank specialists did not rise to the occasion in the new situation, either. There are enough levers at our disposal to influence the state of affairs, but we did not make use of them so effectively. Thus, by denying credit to the 'Nizhneangarsktransstroy' Trust for other operations aside from electrification, where a lag began to show at the beginning of the year, I think, the collective would have simply been forced to concentrate all its efforts and resources on projects being introduced. We applied such sanctions, but then, yielding to the persuasion of the Glavbamstroy management that the lag would be overcome, we conceded. Now we see that we trusted in vain.

"Well, we will draw the appropriate conclusions. Especially as the startup program for the current five-year plan is even more intensive. If we will have to utilize one-third of its cost for the BAM as a whole, we will have to utilize 50 percent for housing and civil construction and up to 38 percent for production and technical buildings. We will also make demands of the customer and the construction workers in these very directions."

**Necessary comment:** Action based on principle is a worthy quality, but if Stroybank had demonstrated it in the stage of signing the documents of the state commission, it would have controlled the expenditure of allocated funds by construction workers without compromising throughout the entire year! And as soon as a complicated situation had developed, employees of the office should have displayed promptness--to speed up an examination of the documentation and its coordination.

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"Very likely the BAM construction workers haven't had a difficult year like the last one," K. Mokhortov said. "Right after completing the laying of the main track, we had to switch from one pattern of operations to another with a higher complexity coefficient. The Glavbamstroy subunits had to switch over not only organizationally and technically, but psychologically--on the move, performing a considerable amount of startup work, speeding up construction of the new Berkakit-Tommot-Yakutsk line, as well as working on electrification of the Transsib [Trans-Siberian Mainline]. All this could not help but have an effect. It is clear that, having become electric linemen, members of the renowned brigades of Heroes of Socialist Labor A. Bondar and I. Varshavskiy did not begin showing such high productivity as on track operations; time was required to acquire skills, experience and professionalism. This also applied in the construction of housing settlements and station complexes, where loggers and machine operators were working.

"The new direction also required a new approach to engineering work, organization of labor, and utilization of facilities for small-scale mechanization. It must be admitted that the services responsible for this,

especially in the 'Tyndatransstroy' Trust, were not equal to their task. Construction and installation train No 573, awarded the Badge of Honor for its work on the BAM, worked under the same conditions as the other subunits in it, but its indicators were much higher than those of their fellow workers. By mechanizing labor-intensive manual operations to the maximum extent, they achieved 40 percent higher output for each finishing worker than on the other trains.

"Had there been better organization and discipline in the trust, and if all its subunits had worked on a level with leading workers, the Larba to Ust-Nyuzhka startup complex would have been turned over completely, without today's 'leftovers.'

"There was feverish activity with electrification for the same reasons. At the beginning of the year, deliveries were poor, and subunits of the "Lenabamstroy" and "Nizhneangarsktransstroy" trusts were working on other projects. But when supply was set right, they did not succeed in making up for lost time for many other reasons as well.

"The brigade of electric linemen of the "Nizhneangarsktransstroy" Trust led by communist Viktor Zimburskiy recently introduced a sensible proposal--to set up a specialized open-cut [skvoznoy] unit, of the type which operated on the BAM in track laying and the construction of water conduits, for excavating a foundation area. This will help to carry on electrification of the BAM in the current five-year plan--up to the Taksimo station in the northern part of the Buryat ASSR and on the Trans-Siberian Mainline. Making use of this collective's experience has promoted a significant speedup in operations in the Western Section. But they let time slip by, and the conclusion of operations for this year had passed.

"We are now striving to settle the debts of last year and to engage earnestly in fulfillment of the no less complex and difficult program of the 12th Five-Year Plan.

"The BAM construction workers will welcome the forthcoming 27th party congress in a worthy manner and complete construction of the mainline in the periods established, to the full extent and with high quality."

Necessary comment: The latest information from the line gives hope for optimism to a certain extent. Houses in the settlements of the Larba to Ust-Nyukzha startup complex are being occupied by railroad workers, and operations in sections being electrified from Ust-Kut to Severobaykalsk are being concluded. But part of the unfinished work will be eliminated until spring, taking the construction workers' efforts away from fulfillment of today's tasks.

Everything is not satisfactory in providing for the program of the current five-year plan, either. The most critical problem is the project's supply of housing structures manufactured by the Shimanovsk Construction Industry Complex, which put the construction workers in a difficult position as far back as last year. True, the output of products here has been increased somewhat. However, not enough to fully meet BAM's requirements for housing.

Moreover, the shift to a new, more technologically efficient series of houses here has been planned for 1988. The question arises: what then is the lesson learned by managers of the project? Which other enterprises will cover the missing part of the housing? And when, if it is taken into account that time, hardly any of which is left, will be required for redesigning residential settlements?

Some of our traditions have been neglected on the BAM, particularly competition in accordance with the principle of "working competition," which in many respects contributed to the high rates of construction on the main line. Its pioneer was the "Tyndatransstroy" Trust, which was successful in avoiding many difficulties with supply, in applying the brigade contract more widely, its collective organizing creative collaboration with plant suppliers and associated construction organizations...

The lessons of startup in no way dispose participants in the project to be complacent: they have too little time before the BAM is put into continuous operation and too many problems requiring urgent solution.

8936

CSO: 1829/99

## RAIL SYSTEMS

### SVERDLOVSK RAILROAD CHIEF ON SIBERIAN RAILROAD CONSTRUCTION

Moscow GUDOK in Russian 13 Dec 85 p 2

[Article by Sverdlovsk Railroad Chief and RSFSR Supreme Soviet Deputy V. Skvortsov, Sverdlovsk: "A Railroad to the Storerooms of Siberia"]

[Text] At the end of the 1960s, the formulation of a territorial industrial complex in West Siberia was begun that today generates more than half of all the oil and gas produced in the country.

In order to realize this wealth, it was necessary to transport millions of tons of building materials, pipe, machinery, and equipment here in the shortest period of time, and to do this in almost totally marshy terrain. The railroad, the construction of which was begun in the late 1960s, was able to become the most reliable transportation. The main line covered almost 2,200 kilometers from Tyumen to the north. Now the line is being laid further--to Yamburg.

Progressive technological solutions were applied in planning and building the main line. New earthen roadbed designs were created using fine and powdered gravel that were earlier considered unsuitable for this. Fundamentally new standard artificial structure plans were developed, using maximum prefabrication, from designs that met the conditions of the Far North.

The watch shift method of service was incorporated for the operation of the completed sections. Residential settlements were located every 60-100 kilometers, rather than every 20-30. This made possible the improvement of cultural and social services for the railroad workers in this harsh region.

These and other innovations imparted additional acceleration to the rate of railroad construction and assimilation, and made possible in the final tally an increase in oil and gas production in the region.

The rate will remain high in the future. Thus, it is envisaged that RSFSR oil and gas condensate production will reach 580-585 million tons a year, and gas 640-650 cubic meters, in the 12th Five-Year Plan. The greater part of this increase will fall to West Siberia. Railroads, as the cheapest and most reliable, will remain as before the principal form of transportation. The shipment of a ton of freight on the steel tracks here costs many times less



than by motor vehicle or on the river. The funds expended on the construction of the new lines are recouped in the span of five years.

But today, the cheapest and most reliable form of transportation is beginning to sputter: the traffic capacity of the line just constructed is practically exhausted. Why did this happen so quickly? In the first place, the annual growth of freight traffic turned out to be greater than projected. Judge for yourself: in the Surgut Division alone, the volume of shipments has almost tripled over the last five years. Such rapid growth is unknown to world practice in operating new railroads. In the second place, a chronic disease had an effect--handing lines over incomplete, even missing facilities determining traffic capacity. Such work was underfulfilled by 165 million rubles in the Tobolsk--Surgut--Noyabrskaya and Ult-Yagun--Nizhnevartovsk sections alone.

These are unfinished sidings, stations, main stations and depots, boiler rooms and water pipes. They have not yet even begun to erect the locomotive depot in Nizhnevartovsk. The Surgut Division has no railroad car depot.

In delivering the latest start-up complex, the construction workers of Mintransstroy [Ministry of Transport Construction] always provide assurances that everything will be finished up in accordance with the plan in the shortest time. But just as soon as the acceptance document is signed, the funds allocated for the erection of the facilities not part of the start-up complex are sharply reduced. The principal efforts of the construction workers are transferred to a different place, and the completion of the facility drags on for many long years. Thus, the estimated cost of the start-up complex on the Surgut--Nizhnevartovsk line placed in operation in 1979, for example, was 74 percent of the total cost. And over the six years that have passed since then, just a little more than half of the remaining funds have been obtained. At this rate, the facilities cannot be completed before 1991. The situation is no better at other delivered priority complexes.

The construction of housing and social and cultural facilities arouses particular anxiety. Seventy-eight thousand square meters of housing has not been erected on accepted sections. Due to this, almost half of the railroad workers that are working here, in the Far North, are living among the beams and in small cars. And when there is no housing, it is impossible to complete the staffing of such necessary professions as route fitters, signalization, centralization, block system and communications electrical machinists, car inspectors, locomotive repair fitters, conductors and train forming-up teams. Housing that is not part of the start-up complex is being finished even more slowly than that--about 5-7 percent a year. And naturally, the number in need of improved living conditions is not decreasing, but rather is increasing in proportion to the growth in shipping.

It is stated directly in the Fundamental Areas of Economic and Social Development of the Country: "To ensure the priority allocation of state capital investment on housing and social and cultural construction in newly-assimilated regions, especially in the regions of Siberia, The North and the Far East." This clause must be rigorously observed.

It is also necessary to pay attention to the fact that the regional coefficient applied to the wages of railroad workers in some sectors is lower than that of oil and gas, construction and motor vehicle workers. The amount of funds for provisions and industrial goods is also less than for the workers of other ministries. There are three buses in all in the Surgut Division, while 10 are needed just to transport children to school. There are not enough pre-school institutions, schools, hospitals or bath houses. Cultural and trade facilities are housed in temporary structures.

Miscalculations of the technical and economic bases and the delivery of lines without the production facilities envisaged by the plans have led to the fact that it is now difficult to provide shipping in this vital region. The amount of traffic has reached the limit. So as to endure the strain, the traffic, line, locomotive and car workers demonstrate, without exaggeration, heroism. For example, for the first time in practice, they have begun to ship enlarged pallets on seven or eight trains along the whole route from Tyumen to Tobolsk and from Tobolsk to Surgut (and this is 600 kilometers). What high reliability is required of the lines, locomotives, cars and means of communication for this! And it must be remembered that this intensive work is conducted in the winter in places where minus-forty-degree weather persists for two or three months in a row and people even work when it is minus 50.

The railroad workers are doing much to provide the North with necessary shipping. But their efforts are not infinite. Without the development of stations, without the sidings and technical apparatus envisaged in the plans but not built that provide the technology of the shipping process, the progressive pallet method and other measures applied by the railroad--increasing the weight and length of consists and train travel speed--already today do not always produce the proper effect. And freight traffic is growing.

According to data of the Institute of Integrated Transportation Problems, the delivery of freight in 1990 will grow by tens of millions of tons in comparison with 1985. The point is that the growth in oil and gas production will occur basically by assimilating new deposits, for the development of which will be required equipment, building materials and much more. And this means that the volume and distance of shipping will grow once again and the number of freight recipients will increase. The brunt of this will fall to the chief Tyumen--Surgut--Urengoy main line. Radical measures for increasing its traffic capacity are therefore necessary.

The development of productive capacity and transportation must be closely linked. Moreover, the rate of development of the latter should even be a little greater: only then do construction sites receive everything necessary in the needed volumes at the designated times. This is precisely why, in the next two years, it is necessary to build all facilities stipulated by the plan and to finish them fully on accepted sections. And in the future IT IS NECESSARY TO FORBID THE ACCEPTANCE INTO OPERATION OF SECTIONS THAT ARE NOT COMPLETELY CONSTRUCTED.

The traffic capacity of the Urengoy route should not be improved by "patching holes" and "mending" bottlenecks--a second line must be built immediately!

Of course, the full development of this work requires a certain amount of time, and therefore the construction of the second group of sidings must be started literally today, along with the laying of auxiliary lines and the lengthening of existing ones at blockposts for the passage of enlarged pallet trains, as well as doubled and long-consist routes. The development of the Voynovka, Tobolsk and Surgut stations must be fully concluded no later than 1987. And since all of the freight traffic for the north of Tyumen from the Urals and the European part of the country passes through the Bogdanovichskiy Transshipping Center, its processing capacity should also be strengthened.

Taking into account the high reliability of electric locomotives, the great availability of energy in the region and the low cost of electricity generated by petroleum gas, it is evident that there exists a basis for the electrification of this route.

Naturally, the existing construction organizations will not be able to manage everything necessary quickly. Therefore it is necessary at least to double the capacity of the Mintransstroy subunits employed here and to use Minpromstroy [Ministry of Industrial Construction] and republic construction organizations, who are today erecting housing for oil and gas workers of the region, for industrial and civil construction.

The railroad, summoned to assist the rapid assimilation of new oil and gas deposits, should itself be sufficiently technically developed. Only in that case will it operate reliably.

12821  
CSO: 1829/59

JPRS-UTR-86-005  
7 April 1986

## RAIL SYSTEMS

### PLANS FOR VARDENIS--DZHERMUK RAIL LINE IN ARMENIA

Yerevan KOMMUNIST in Russian 27 Nov 85 p 3

[Interview with Armtransstroy [Armenian Transportation Construction] Trust Manager Ye. Avetisov by KOMMUNIST correspondent S. Markosyan: "The Route Leads into the Mountains"]

[Text] "In the Armenian SSR... to expand the construction of the Vardenis--Dzhermuk Railroad Line."

(From the draft of the Fundamental Areas of Economic and Social Development of the USSR for the years 1986-90 and for the period to the year 2000.)

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The construction of the uniquely complex Idzhevan--Razdan electrified railroad is being completed, and the republic construction workers have been assigned a difficult new task--to extend the steel track from Vardenis Station to the resort of Dzhermuk. Armtransstroy Trust Manager Ye. Avetisov recently conducted a familiarization tour of the new route by landrover.

Our correspondent, S. Markosyan, met Armtransstroy Trust Manager Ye. Avetisov on the route and asked him to describe the technical characteristics of the new mountain main line.

Avetisov: The terrain over which the new route will pass is not like those where we have already built lines. We spent five hours on the trip from Vardenis to Dzhermuk (an electric locomotive will spend two hours), there is no improved motor vehicle road, the single cart-path is barely discernible on the slopes of the plateau that are already covered with snow. The route region is uninhabited, and we will create strong-point bases from which we will begin work.

Correspondent: It is a difficult task, but a noble one--to assimilate virgin mountain lands.

Avetisov: Yes, I am familiar with the KOMMUNIST articles under the rubric "The Mountain Regions: Problems and Prospects." Today we are involved in the sphere of resolving these problems as well. Let's remember what the Yerevan--Sevan Railroad gave to the republic. The new industrial centers of Charentsavan and Razdan appeared on the map, and Sevanskiy Rayon, earlier agricultural, became industrial and agrarian. The line then went on to Shorzha and Zod, and Krasnoselskiy Rayon began to build up more quickly, Vardenis became a center of attraction and gold-bearing ore began to be shipped.

Correspondent: Your collective has construction experience in the mountains...

Avetisov: The trust has built 304 kilometers of railroads in the republic over the last fifteen years, including many industrial enterprise sidings, and 309 kilometers of motor vehicle roads, built moreover basically in the mountain regions of Zangezur. Runways for the airports of Leninakan, Kafan, Goris and Dzhermuk were also constructed. The Idzhevan--Razdan line was good training for the construction workers and it revealed new prospects for the future assimilation of the Razdanskiy, Gugarkskiy and Idzhevanskiy rayons, and the resort of Dilizhan is receiving direct rail contact with all cities of the country.

Correspondent: Today the assimilation zone is the outlying regions. The task is to put new lands into agricultural production, intensify animal husbandry, consolidate the rural population in the area, and satisfy the needs of inhabited locations far from the capital for means of conveyance and shipping. The opportunity will arise to build recovery and refining enterprises and to open new branches of plants and factories in the towns.

Avetisov: It is with precisely this aim that the Vardenis--Dzhermuk Railroad is designed. The engineering plan was developed by the Armgiprotrans [Armenian State Institute for the Planning of Transportation] Institute, and the preparation of blueprints for the structures on the route and various support structures is underway. Vardenisskiy and Azizbekovski rayons will become the centers of attraction of the line, the middle section of the steel track will traverse the territory of the Kelbadzharskiy Rayon of the Azerbaijan SSR, and then along the right bank of the Arpa River it will approach the western outskirts of the city of Dzhermuk. Dzhermuk Station will be located on a mountain plateau more than 2,200 meters above sea level. This will be the highest-altitude station in the country's railroad network. The route crosses the Vardenisskiy Range at an altitude of approximately 2,600 meters.

Correspondent: Please describe the future construction project in greater detail.

Avetisov: There will be five blockposts on the 56-kilometer line: Dashkend, Lernain and Arpa sidings and Perevalnaya and Dzhermuk stations. The Perevalnaya will be the shortest route linking the Azerbaijan resort of Istisu with the railroad. Earth-moving and detonation work totaling 6.5 million cubic meters will have to be done, along with 153 artificial structures including retaining walls, three overbridges at motor vehicle road intersections and

several bridges. The line will be electrified, which means the construction of five traction substations, and the installation of 2,300 catenary system supports will be necessary.

The design incorporates a large complex of production, maintenance and residential buildings at the stations and sidings. These are main stations, posts for electrical centralization of switches and signals, railside freight storage, railroad car maintenance and monitoring points, warehouses and communications compartments. Housing alone of more than 5,000 square meters of total area will be built. Vardenis Station will become a transshipment center.

With the completion of main line construction, the difficulties associated with the export of the Dzhermuk-brand mineral water will be surmounted, and the opportunity will arise for a significant expansion of the plant and a doubling of the bottling of the medicinal water. In addition to the airport, the resort city will receive a railroad station with the appropriate apparatus for freight operations. The delivery of construction materials for the future development of the resort will be greatly simplified.

\* \* \*

The task of assimilating the mountain regions is a matter of state significance and a matter of honor for the transportation construction workers. The steel track of the railroads climbs ever higher into the mountains, trains run along untraveled passes, and new routes to the sources of national wealth are opened.

12821  
CSO: 1829/64

## RAIL SYSTEMS

### ADDITIONAL CAUCASUS RAIL LINE PROPOSED

Moscow GUDOK in Russian 18 Dec 85 p 2

[Article by USSR Academy of Sciences Corresponding Member and North Caucasus Scientific Center of Higher Education Council Chairman Yu. Zhdanov: "The North Caucasus: Improving Transportation Links--A Scientist Proposes"]

[Text] The railroads have a decisive role in the transportation infrastructure of the country. The draft of the Fundamental Areas of Economic and Social Development of the USSR envisages an increase in their traffic and freight capacities, first of all on the routes linking the Center with the Urals, West Siberia, the Volga Region, the southern part of the European section of the country, Kazakhstan and Central Asia.

The laying of the Caucasus Transmountain Railroad will have great significance in improving the railroad contact of the Center with the south. The beginning of its construction is already projected for the 12th Five-Year Plan.

This does not, however, fully solve the problem. The inadequate transportation network is already now greatly restraining the efficient utilization of the productive potential and the development of the economic complex of the North Caucasus. It also has a negative effect on the links of the Center and the Ukraine with the Caucasus and creates difficulties for increasing foreign-trade shipping through the ports of the Black Sea and the Sea of Azov.

The existing Rostov--Mineralnyye Vody--Baku Main Line railroad is already in no condition today to assimilate the growing shipping. Estimates show that even with the intensive improvement of the organization and technology of shipping, the shortage of traffic capacity on the section from Rostov to Georgiyevsk in 1995 will not permit the assimilation of the projected growth in freight turnover.

Overall, the density of freight traffic in the North Caucasus is almost one and a half times greater than the national average. And a persistent trend toward its further increase appeared in the 11th Five-Year Plan.

The historically developed disposition of the railroad network in the North Caucasus region made possible the economic assimilation of just the western areas of Rostov Oblast, Stavropolskiy Kray and only a small portion of some of



the autonomous republics of this region. The construction of the Caucasus Transmountain Line will not produce the hoped-for effect if the transport capacity of the approaches to it is not improved.

The fundamental solution of the North Caucasus transportation problems, to my view, is the construction of a Center-Caucasus Main Line railroad through Voronezh--Kalach--Veshenskaya--Morozovsk--Kuberle--Svetlograd--Budennovsk with the development of the existing Rostov-Baku Main Line on the Georgiyevsk--Beslan section or the construction of a Budennovsk--Mozdok--Beslan line to provide access to the Beslan--Tbilisi Caucasus Transmountain Line. This proposal is substantiated by the specialists of the Kavzheldorproyekt [Caucasus Railroad Planning] Institute and the Rostov Institute of Railroad Transportation Engineers and is supported by the North Caucasus Scientific Center.

In the zone contiguous to the proposed line are included the eastern regions of Rostov Oblast and Stavropolskiy Kray, the western regions of the Kalmyk ASSR and several regions of Astrakhan, Volgograd and Tambov oblasts. It is proposed to implement land improvement work here, as a result of which the proportion of just the regions of Rostov Oblast and Stavropolskiy Kray in the production of end products of the North Caucasus agricultural complex will increase from 24 to 33 percent.

It is anticipated that the improvement of the transportation infrastructure of this zone and the consequent reduction in the losses of agricultural produce can generate an annual growth in gross agricultural production of 3-4 percent, and of 4-5 percent of the entire agricultural complex. Moreover, a reduction of 30-35 percent in motor vehicle shipping is anticipated in the areas traversed by the railroad main line. Empty runs will be decreased by 15-20 percent as a consequence of the proximity of the stations to the production zones of agricultural output.

The construction of the Center-Caucasus Railroad Line will create conditions for the formulation of major territorial production complexes and industrial centers in the adjoining region. Favorable opportunities for prospecting for and assimilating natural resources in this area will arise. As is not surprising, the extent of exploration in this region is less than that of East Siberia and the Far East. It is also impossible to discount such a crucial factor as the creation of conditions for the stabilization and consolidation of the population.

The total length of the proposed main line is 954 kilometers. Almost 500 kilometers of its sections are already built or are in the reconstruction stage. This means that 455 kilometers will have to be newly laid, of which the priority is the 150 kilometers from Kuberle to Svetlograd. The proposed expenditures on the new construction and reconstruction of operating sections total, according to our rough estimates, 700 million rubles. They will be recouped in four or five years.

I consider it expedient to enter into the Fundamental Areas: "TO BUILD A CENTER--CAUCASUS MAIN LINE RAILROAD AND INCLUDE THE APPROPRIATE WORK IN THE 12TH FIVE-YEAR PLAN."



The laying of the Caucasus Transmountain Railroad will not in and of itself solve many problems of linking the Center with the southern part of the country. All the same, it is necessary to develop the railroad network along the proposed lines. The timely laying of the Center--Caucasus Main Line will generate a rapid economic saving. It will grow considerably with the opening of traffic on the Caucasus Transmountain Railroad.

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CSO: 1829/64

## RAIL SYSTEMS

### IDZHEVAN--RAZDAN LINE IN ARMENIA OPERATIONAL

Moscow GUDOK in Russian 17 Jan 86 p 1

[Article by GUDOK correspondent S. Babayan, Razdan--Idzhevan: "A Report from the Scene of Events: A Line Through the Mountains--The Idzhevan--Razdan Line in Operation"]

[Text] The construction workers' collective of the Idzhevan--Razdan railroad line has won a great labor victory. The first train passed along the entire mountain route.

This moment was awaited in Razdan with great impatience. There is animation at the station. Here comes a festively decorated electric locomotive. The first passengers are seated in it. The green eye of the signal light flashes, and the consist leaves on its way.

From here, from the new major industrial center in the northern part of the republic, the steel track winds through the high mountains toward Megradzor, dives into an eight-kilometer tunnel, surmounts the Pambakskiy Range, and comes out through the city of Dilizhan into a canyon that descends into the Agstev River valley in Idzhevan.

The opening of through traffic on the Idzhevan--Razdan line is a great event for Armenia. The whole republic is situated in the mountains, and after all the main thing in them is the railroad. Until now, only one steel "thread" led from Yerevan to Tbilisi. Now there are two of them. The new line will allow more intensive development in the economy of a number of areas of the republic.

Years of intensive labor are behind the construction workers. These 77.7 kilometers did not come easily to them. Every meter in the mountains demands the full exertion of strength. Almost a quarter of the new route is tunnels, and add to that dozens of artificial structures, moreover complex, requiring a range of creativity in planning and construction.

Today is a holiday that was preceded by difficult working days. The whole country came to help the Armenian construction workers. People of 27 nationalities, day and night, in intense heat and severe cold, opened the meters of the difficult line. Records of the past year were visibly demonstrated:

discipline and responsibility, with an inclination toward a specific cause, sometimes make it possible to do what seems impossible.

But the construction continues. It is necessary to develop locomotive, railroad car and other organizations here. Much must be done to improve the living conditions of the operators. And this means that it is necessary to maintain a rapid pace.

"The tunnels on the route were drilled under the most complex geological conditions," said ArSSR Supreme Soviet Deputy R. Arutyunyan, the team leader of the tunnel drillers of Armtunnelstroy [Armenian Tunnel Construction]. "In order to see better the contribution of the tunnel drillers to the construction of the line, one must pass on foot through all 16 kilometers of the underground corridors. Hundreds of thousands of cubic meters of mountain rock were trucked from the tunnels, the walls and arches were finished with concrete and tubbing, and a whole set of other complex operations was carried out.

"The friendship and strong cohesion of all of the participants in the construction project helped us surmount the difficulties."

The construction workers of the Idzhevan--Razdan line accumulated rich and valuable experience in laying railroad tracks in complex mountain conditions. New technology was tested here, and bold engineering developments were verified for reliability. And this is especially important now, since a unique construction project is unfolding in the mountains--the Caucasus Transmountain Line.

12821

CSO: 1829/64

## RAIL SYSTEMS

### LAGGING PRODUCTION AT KALININ RAILCAR WORKS

Moscow EKONOMICHESKAYA GAZETA in Russian No 45, Nov 85 p 19

[Article by EKONOMICHESKAYA GAZETA correspondent O. Artynskiy from Kalinin: "The Plant Has Permitted a Lag"]

[Text] It was not a pleasant fact: the collective of the Kalinin Railroad Car Building Plant did not fulfill the 8-month production program for a number of basic indicators. The client received fewer passenger cars than had been established by the quota and there were fewer trucks for subway cars and other products. The small backlog of above-planned product which had been accumulated since the start of the year was "consumed" in August. Frankly speaking, such a course of events is unusual for the plant employees. The enterprise is a leading one in its sector.

Why the failure occurred is a special question. With whomever I spoke at the plant, everyone agreed that, unfortunately, very frequently suppliers let them down. And this involved not only enterprises of other sectors. The schedules for the dispatch of subcontracting parts had not been met by collectives of plants from their own ministry, Mintyazhmash [Ministry of Heavy and Transport Machine Building]. Here is a completely recent example. The Bezhitskiy Steel Casting Plant which is in the Bryansk area dispatched automatic couplers for the September program not at the beginning of the month but on the 30th. But the cars were to be tested in the client's presence according to a special program. But without the automatic couplers this could not be done. As a result, the MPS [Ministry of Railroads] accepted fewer cars than the enterprise could have delivered. But if this were only the problem....

Another thing is more important. During the five-year plan, commented the association's chief engineer, S. Gamarov, the reequipping of a number of production lines has been carried out incompletely. He explained this by the fact that the plant does not have its own powerful construction organization. But outsiders are unwilling to do the reconstruction. If the construction workers do start such jobs, it is only under great pressure. This is why they have been able to reconstruct certain shops in basic production, having increased the product output volume, while the capacity of the auxiliary shops such as tool and repair-machine, in essence, has remained as before.

Of course, in turn, the VPO Soyuzvagonmash [All-Union Production Association for Railroad Car Machine Building] could have helped. But the reverse happened. The plant was constantly loaded down with orders for other enterprises of the sector. Last year, the Kalinin workers received an emergency assignment to manufacture 125,000 rubles of non-standard equipment for the same Bezhitskiy Steel Casting Plant. They did it using the resources of a number of the main and auxiliary shops, as they say, to the detriment of themselves.

A lesson was drawn from this situation. Although only in terms of the repair workers. The problem was that the plant manufactured a good deal of unstandard equipment to equip its own production subdivisions. And this was frequently done by the repair shop. But this was reflected in the operation of the enterprise as a whole. For this reason the leadership decided to establish additional sections for manufacturing such equipment. In this manner the repair service would be freed from carrying out the orders of basic production as the repair workers should be concerned with their own job. Their task was to ensure the uninterrupted work of all the equipment and to assist in constantly increasing its technical level.

"In contrast to the main subdivisions, we, as a rule, carry out single orders," explained the brigade leader of the integrated brigade of the repair-machine shop, L. Syvorotkin. "And this requires from the executors high skills, time for studying the technical specifications and the preparation of tools and fittings. All of this must be done quickly. But we do not have the capability.... The machine tools are old. You know, the men sometimes perform miracles to carry out a difficult assignment...."

The brigade of L. Syvorotkin is a leading one and has been a repeated winner in the competition among the primary production collectives at the plant. The difficulties which he spoke of are typical. This was confirmed by the chief production engineer of the association, B. Polyakov. Many buildings and shops at the plant are in need of reconstruction while the equipment needs replacement or modernization. At present at the association almost one-half of the machine tools and lines have been in use 20 and more years. They are being replaced slowly. Under the conditions of the experiment, particularly after the issuing of the party and government decree "On the Broad Spread of New Management Methods and the Strengthening of Their Impact on Accelerating Scientific and Technical Progress," the association's leadership will have greater opportunities to independently settle many questions related to the reconstruction and technical reequipping of production. But this will be in the next five-year plan. Although a good deal has been done in this one.

According to the technical reequipping plan drawn up for this year by the association, over 2 million rubles have been allocated from the production development fund. Basically the funds are to go for reconstructing the half-wheel section of the truck shop, reequipping the forging-stamping division of the forging shop and the brake equipment shop as well as acquiring a computer for the computer center. In the shops around 200 units of highly productive equipment have been installed. More than 30 progressive production processes have been worked out and introduced. At present, the parts for the subway car trucks are manufactured on numerical control machines.

But the alarming thing is that in the machine shops the modern equipment is poorly used. The shift factor of the numerical control machines is just 1.52 and according to the sectorial standard a figure of 1.8 is required. These are expensive machines. Although they have reduced the need for machine tool operators, the return is still low. Why? The answer is simple: the machine tools are operated at less than full capacity.

At a meeting of the CPSU Central Committee on accelerating scientific and technical progress, it was pointed out that at each association, enterprise, at each production section it was essential to ascertain those elements where with minimum expenditures or without any at all it would be possible to obtain the greatest effect. Certainly these tasks confront the Kalinin railroad car builders. But how are they being carried out?

At the association's trade union committee they said that the technical services had begun certifying the jobs. But the question has been drawn out and the work is done largely formally. It was decided to certify 1,896 jobs at 17 subdivisions. Some 1,583 were certified. A total of 551 jobs were accepted without comment. But for more than a thousand, the individual indicators for labor productivity, the organization of labor and working conditions were significantly below the norm. Hence recertification was needed. But if to this thousand one adds the more than 300 jobs which in terms of working conditions and safety equipment had not been certified at all, then there is no end to the work in this area.

At the same time the plant expects increased production efficiency from the certification. It is disconcerting that the degree of mechanization for labor-intensive processes in basic production is 51.4 percent and in auxiliary 41.2.

The indicators, as we can see, are extremely low. What are the specialists doing? The association has worked out a specific integrated program for reducing manual labor and this envisages an absolute reduction during the 12th Five-Year Plan in the number of workers employed in manual labor by more than 2,000 men. They plan to achieve this by introducing highly productive equipment and establishing fully mechanized lines and sections in assembly and welding production.

At present, the association possesses great possibilities for seeking out reserves. It is a question of the right to spend the existing savings in the wage fund on additions and surpayments to the wage rates and salaries of workers and engineers who by their creative labor and concrete results affirm their high skills. At present, more than 500 workers and specialists are receiving the surpayments.

There is broad scope for the activities of innovators. There are also reserves on the question of improving the equipment, the management and organization of production.

"If we speak about reserves," emphasized the acting general director of the association, V. Shaverskiy, "multiple machine operating has been little developed. Last year, there were a little more than 200 persons operating

multiple machines. This small detachment of skilled workers made it possible for us to free and shift more than 100 men to other areas. Hence, multiple machine operating must be expanded.... Now about the brigade form of the organization and encouragement of labor. Presently, the brigades include 71 percent of the total number of workers. Seemingly the figure is a good one. However, many brigades are small. They must be consolidated, they must be switched to wages according to end results employing the KTU [labor participation coefficient], and cost accounting must be introduced. We are not working on this...."

The experiment's conditions require the greatest concentrating of the efforts of engineers and technicians on improving production methods, introducing scientific and technical achievements and reducing the labor intensiveness of the products. This was discussed at one of the meetings of the association's party committee. There it was pointed out that there are many oversights in the activities of the engineer subdivisions. Here is one of them: due to poor supervision over the strict observance of the schedules for the preparation of production, for manufacturing the assemblies and pieces and do to the low exactingness on the part of the shop and department chiefs, the output of new models of equipment set by the 1985 state plan may not be met. The bodies of high-speed intercity cars, a 27-m car and other types have been manufactured and delivered to the car assembly shop. Here they have organized a brigade for assembling the means of transport and have established supervision over the execution of the work. However, the preparatory shops and primarily the woodworking and finishing shops, have held up the assembly of the very important products in being slow in delivering assemblies and parts.

It was established that the primary party organizations of the shops and departments do not sufficiently supervise the activities of the administration in carrying out the new equipment plan and do not bring up these questions for discussion by the communists. The party committee bureau was informed of the statement of the chief engineer, S. Gomerov, the chief of the car assembly building, B. Polyakov, and the deputy chief of the production-dispatcher department, V. Solovyev, that everything necessary would be done to produce the new models of equipment fully and at the designated times.

This is all the more important as the plant collective, like all the nation's enterprises, in working out the plans for the 12th Five-Year Plan, has taken into account the need to accelerate scientific and technical progress and supply the railroad workers with modern means of transport. The production volume by the end of the 12th Five-Year Plan will rise by 30 percent in comparison with 1985. Labor productivity will increase by 34.7 percent. The output of consumer goods will increase by 60 percent and reach 8 million rubles. Such a significant increase in product output will basically be achieved by the broad use of reserves and by the reconstruction and technical reequipping of many shops.

"In the current year," avowed the deputy general director of the association for economic questions V. Denisov, "we will do everything necessary to eliminate the lag and fulfill the annual plan."

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## RAIL SYSTEMS

### HUMPING, COUPLING DEFICIENCIES CAUSING EXCESSIVE CAR DAMAGE

Moscow GUDOK in Russian 23 Nov 85 p 2

[Article by A. Balanin, department chief of the Main Technical Administration and V. Sheykin, laboratory head of the All-Union Scientific Research Institute of Rail Transport from Moscow: "Important Components of Intensification"]

[Text] The mechanized humps of the Soviet railroads in terms of operational volumes have firmly maintained leading positions in the world. However, economic development and the increased freight flows have required a further increase in their handling capacity. The Basic Directions focus on this. Where are the reserves to come from if many humps even now are operating at the limit of their capabilities?

The forcing of humping operations often is accompanied by a poorer safeguarding of the rolling stock and the freight in splitting up the consists. The damaging of cars on the humps has been growing year by year and over the last 5 years has increased by more than 40 percent. Here the hopes that we would be aided by mechanizing car braking not only on the grade of the hump but also in the parking areas have not been fully realized. There are numerous reasons for this.

Primarily our car fleet has not been sufficiently readied for accelerated shunting on the humps. Although the safe speed level we have established for the impacting of the cars of 5 km an hour is disproportionately low (it is 40 percent lower than, for example, in England and 100 percent less than in the United States), however, as a consequence of the insufficient shock absorbing properties of the automatic couplers and violations of the technical conditions for loading and holding down the freight, damage frequently occurs in the shunting.

The end walls, the doors and sides of the cars are broken, the housing of the automatic coupler is buckled, and the lift rollers and springs fall out. Characteristically around 10 percent of all damage occurs with an impact speed of even less than 5 km.

It is essential to work out and gradually implement a specialized specific program for improving automatic coupling, for bettering its shock absorbing properties, for increasing the reliability and strength of the limiting

assemblies and improve the methods for fastening down the freight. This will provide an opportunity to achieve increased impact speeds and will be a noticeable contribution to raising the volumes of car processing on the humps with a simultaneous protecting of the rolling stock and the freight.

There have been frequent instances of damage to cars on a hump because they are not braked with the strongest effect of the retarders at all the braking positions. This occurs in instances when the car wheel rims, in violation of the instructions of the MPS [Ministry of Railroads], have been painted or covered with bitumen or heavy oil products. The cars with such wheels are in essence technically malfunctioning and correspondingly a rigid ban should be introduced for incorporating them in trains.

The gravity humps are simply stifled by the enormous number of cars which should be banned from the hump. Due to this the humps lose around 15 percent of their handling capacity. There must be a substantial reduction in the range of such rolling stock and its dispatch should be organized in groups and by block trains.

The increased productivity of the humps has been tangibly retarded due to the unsatisfactoriness of their own operating and technical characteristics. Experience of recent years in the construction and reconstruction of the mechanized large-capacity humps has shown that a number of decisions has been made without sufficient technical and economic background studies. For example, the introduction of the zero brake position, the parallel laying of additional technological lines which are basically non-operating and the excessive elongation of the descent with a low average grade.

The latter circumstance during the difficult previous winter led to a difficult operational situation due to numerous instances of the overtaking of slow cars by fast ones, to their coupling and the forming of "odd couples." Each day on some of these humps, 100-120 shunting operations in the switch area had to be performed for coupling the "odd couples" or for waiting for prematurely halted uncoupled cars.

At many humps the curve radii are significantly less than the minimum standard equal to 200 m. Even with this radius such great resistance to movement arises that even a fast car is turned into a slow one. What can be expected from a car when it enters a curve with a radius of 150 or even 100 m? Incidentally, such curves can even be found at the modern Orekhovo-Zuyevo Station.

Around 70 percent of the stations have an unsatisfactory track grade on the hump and in the park. At the same time, the instructions of the MPS published in March 1983 on testing and straightening the plan view and grade of the tracks have been carried out slowly or are not carried out at all. The road design institutes which are in charge of carrying out the surveying work have often ignored these assignments.

With such a situation at a majority of the stations there is not even any documents on the actual plan views and grades of the track. Hence there is

neither any evaluation of the situation or substantial grounds for issuing assignments to straighten the track.

As is known, the process of rolling the uncoupled cars is subordinate to certain patterns. Consequently, the locating of the brake positions also cannot be random. As experience has shown, the optimum place for the first position is approximately midway, between the top of the hump and the second brake position. But at a number of humps the first position has been brought excessively close to the top. The car has not even reached full speed, it has still not shown its running qualities but must already begin to brake, otherwise the speed of entering the second position would be excessive. At other stations, conversely, the first brake position is too far removed from the peak and has been brought closer to the second. Either deviation from the optimum solution is a source for the chronic overloading of the operators, it is fraught with mistakes and bad work and causes a decline in the break-up rate.

Many liberties have been taken also in selecting the place for locating the distribution and operator towers. Often the demand of the PTE [Technical Operating Rules] is ignored that in operating the switches, signals and other equipment from the tower all of this should be clearly visible to the operator.

It has been established that the best conditions for controlling braking equipment are provided at a distance of 40-60 m from the tower and with centralized control from one tower at a distance of 80-100 m with supplementary local lighting of the braking positions. In actuality, the operator towers are located at 3-5 m as well as 150-180 m. The central hump towers have begun to be located in such a manner that the operators simply are unable to see the parts of the retarders controlled by them and consequently the cars being braked.

The constant increased stress caused by the abnormal working conditions and the threat of material liability for the damage caused to the cars have led recently to increased personnel turnover in this very important employee category for the humps. As a result, the average level of professional skill has declined: at a number of major humps over 70 percent of the operators have been employed only 12-18 months. Generally speaking the ergonomic aspects of controlling the hump facilities as yet have been little considered.

The previous winter has clearly shown that the height of many humps is not sufficient. The highest of them, including 24 percent of those operating in harsh climatic areas, where the conditions for moving the uncoupled cars in the winter are particularly harsh, in terms of their height are 20-25 percent less than many foreign ones, although in terms of the operational volume, they, as a rule, constantly surpass them. The margin of "viability" of the humps, that is, their reserve of trouble-free precise operation with any deterioration in the weather conditions and the occurrence of other complications, must be increased.

In recent years due to the 10-20 percent increase in the axle loads of many types of cars and the increased speed of the uncoupled cars, the dynamic

stresses have increased in the retarder centers and their wear has increased by 15-17 percent. An analogous situation is observed in the work of other hump equipment including the track rails, the switches, control equipment and servomechanisms. At the same time, the conditions for organizing maintenance and routine repair on hump equipment are very complicated.

The technical breaks between the break-ups of the consists at many humps do not exceed 7-10 minutes and a portion of them is used for carrying out shunting movements. But the planned "windows" are set irregularly and are often of shorter duration than is required. At the same time the corresponding facilities for the industrial maintenance and repair of hump equipment are usually not established in the plans for mechanizing the humps and this leads to an increased amount of unproductive manual operations, it delays repairs and worsens their quality.

The specialized mechanized areas for the assembly and repair of the 25-30-ton retarders the construction of which has been planned by the instructions of the MPS of 1981, exist only at just four humps.

There must also be an improvement in the compressor system of the humps as this largely determines the reliability of braking the uncoupled cars. As yet only 60 percent of the humps can turn on all the compressors in emergency situations. At the remainder there is no such opportunity. Chiefly because the required electric supply has not been provided; the drive cables are too small and transformer capacity is insufficient.

From what has been said it is clear that for increasing the productivity of the operated humps a range of problems must be solved. This work should be carried out within a specific program aimed at a radical increase in the volume indicators of our "routing factories" with a simultaneous rise in the safeguarding of the car fleet. We feel that this should be stated in the Basic Directions where the question is raised of increasing the handling capacity of the shunting yards.

In carrying out such a program, the leading role should be played by the scientific and design organizations, by the involved MPS main administrations and by the railroads.

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## RAIL SYSTEMS

### DNEPRODZERZHINSK RAILCAR PLANT PLANS IMPROVED MODELS

Moscow GUDOK in Russian 22 Feb 86 p 2

[Article by A. Lyapin, assistant editor of the newspaper PRIDNEPROVSKAYA MAGISTRAL: "Railroad Cars of the Future"]

[Text] Dneprodzerzhinsk--Employees of the welding and assembly shop of the Dneprodzerzhinsk Railroad Car Manufacturing Plant imeni PRAVDA are working at a stepped-up pace.

The Dneprodzerzhinsk workers have mastered the production of many types of rolling stock over the years of the 11th Five-Year Plan. They include hatch hopper cars, for the development of which a group of specialists was awarded the USSR State Prize. The specialized cars for transporting coal from Ekibastuz to the country's thermal electric power stations are worthy of attention. Each one holds 100 tons of the solid fuel. The rolling stock for transporting steel in coils and fagots, which the Dneprodzerzhinsk workers were the first in the world to turn out, is in particularly high demand.

"During the 12th Five-Year Plan, the enterprise collective will make greater advances," says E. Frenkel, the plant's deputy chief designer. "To begin with, the technical and economic indicators of five of the eight types of rolling stock being turned out will be increased. The main emphasis is on increasing carrying capacity and improving quality. For example, we have now begun developing a flatcar of improved design for delivering 70 tons of steel in coils and fagots, rather than 64 tons. The designers decided to make the sides 'collapsible,' which makes it possible to quickly raise or lower their height."

In a word, the railroad car builders are making efforts to increase the output of modern specialized rolling stock, as outlined in the plan of the Basic Directions for Development of the National Economy.

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CSO: 1829/99

## RAIL SYSTEMS

### DELAYS IN 8-AXLE GONDOLA PRODUCTION INVESTIGATED

Moscow SOVETSKAYA ROSSIYA in Russian 5 Feb 86 p 3

[Article by A. Glovatskiy, candidate of technical sciences: "Who Will Help Out the Railroad Car?"]

[Text] Every year the state loses about 2 billion rubles-- this is the sum which the use of 8-axle gondola cars, instead of those with four axles, could provide. However, organization of production of the new car is by no means turning out well. This story, which involves nearly a quarter century of trying experiences to no avail, was told in the report "The Lost Railroad Car." The editorial staff has received official responses.

"The MPS [Ministry of Railways] considers the published article very useful," states Minister of Railways N. S. Konarev. "Failure to supply the sector with the 8-axle cars is causing considerable harm to the interests of the national economy. However, the machine building industry, in spite of the decisions made, has never begun production of the new cars."

Well, these words once again confirm how important the problem raised by the newspaper is. And it is not a coincidence that the minister considered it necessary to respond personally to what was published. However, the Ministry of Railways is an interested party, but what do those on whom solution of the problem directly depends think?

The response from the Mintyazhmash [Ministry of Heavy and Transport Machine Building] was signed by N. N. Khimin, chief of the Planning and Capital Construction Administration. He also considers the problem raised to be urgent, and states: "...the Mintyazhmash, together with the ministries concerned, is now preparing the plan for construction of the first section of the Abakan Railroad Car Plant."

The response from Comrade Khimin, at first glance, exudes optimism: there are no problems whatever, he says! But why can't the new car which the national economy has been waiting for for many years be brought to life? How did it turn out that it was lost, drowned in a paper whirlpool? Alas, the managers of the Mintyazhmash avoid responses to these questions. There is no denying

that the headquarters of the sector is obviously not embarking on the new five-year plan with the proper attitude. Doesn't this also explain the attempt by the letter from the administration chief, which doesn't elucidate anything, to shield itself from the facts of a pointed article?

They reacted to the newspaper's statement roughly the same way in the Gosplan as well. I. S. Reves, deputy chief of the Heavy, Transport, and Road Building Machinery Department, reported in accordance with the tradition of enumerating existing difficulties: "...the USSR Gosplan, in reviewing the question of continuing construction of the Abakan Railroad Car Plant, has made a decision to provide in plan drafts for the 12th and 13th Five-Year Plans for the allocation of capital investments to develop capacities to manufacture 8-axle gondola cars and flatcars for the transport of heavy containers. The reconstruction of plants which are turning out 4-axle cars for the manufacture of 8-axle cars has been acknowledged to be inexpedient."

The letters from interested readers dispute this opinion. Thus, Professor V. Koturanov, prorector of the Moscow Institute of Railway Transport Engineers, writes:

"The designs of 8-axle gondola and tank cars were tested and approved by interdepartmental commissions for series production. They have experience in making gondola cars at the "Uralvagonzavod" plant and tank cars in the "Zhdanovtyazhmash" association. They are now trying to explain the failures to carry out the decisions which were approved by the lack of capacities to manufacture 8-axle cars and the impossibility of retooling the plants in operation. Such explanations are improbable, to say the least. It is well known, for example, that only half of the capacities of "Zhdanovtyazhmash" are being utilized. As far as retooling is concerned, a number of plants have already obtained equipment for it which either is not being used at all or is not being utilized to the full extent. The Stakhanovskiy Railroad Car Plant, which acquired the equipment to manufacture individual assemblies for the 8-axle cars and then was reoriented to turn out other products, proved to be in this situation. So the attempt by planning organs to associate the problem with the Abakan construction project alone is unfounded.

"The years pass by, but the problem still has not been resolved. The introduction of innovation is being impeded. Meanwhile, vast resources have been spent on construction of dozens of car dumpers and preparation of freight handling areas [gruzovyye fronty], but all this is idle today because of the sack of 8-axle cars.

"On the whole, the situation requires immediate correction. In my view, it is necessary for Section 5 of the draft of Basic Directions to be amplified by a statute on the top-priority development of all-purpose 8-axle gondola and tank cars. Then the increase in freight shipments specified will have a real guarantee."

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## RAIL SYSTEMS

### BRIEFS

**LENINGRAD METRO CONSTRUCTION UPDATE**--On the metro's Pravoberezhnaya line, the structure of the working face has been completed for installation of the heading machine which will begin driving the left tunnel section from the "Ploshchad Aleksandra Nevskogo-2" station to the side of the future "Ligovskaya" underground terminal. The entrance of this station, which will be situated at the intersection of Ligovskiy Prospekt and Transportnyy Pereulok, will be "built into" the section of the complex in everyday use [proizvodstvenno-bytovoy korpus], which is designated for the metro services. Tunneling also is being continued from the "Prospekt Bolshevikov" station now in operation in the direction of Dybenko Street, where the "Krasnykh Komissarov" metro terminal will go into operation in 1987. Construction and installation work is proceeding in full swing on the new section of the Moskovsko-Petrogradskaya line from "Udelnaya" to the north, where two stations are called for on Engels Prospekt at places where it intersects with the Vyborg Highway and Prosveshcheniye Prospekt. [By M. Tarasov] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 12 Jan 86 p 1] 8936

**NEW DIESEL LOCO ENGINES**--(TASS)--Engines of a new type, put into series production by the Kharkov "Elektrotiyazhmash" Plant, are ensuring reliable operation by diesel locomotives under the severe conditions in the North. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 5, Jan 86 p 3] 8936

**VOLGA RAILROAD BORDER SHIFT**--In connection with the establishment of a new border between the Volga Railroad and the West Kazakhstan Railroad to Siding No 2 inclusively, changes have been entered for the West Kazakhstan Railroad in the 1975 edition of Rate Manual No 4 and other standardized reference data. The changes will be published in the Collection of Shipping and Rate Regulations for USSR Rail Transport. [Text] [Moscow GUDOK in Russian 22 Jan 86 p 2] 8936

**NORTHERN RAILROAD DIVISIONS SHIFT**--The Vozhega-Shirikhanovskiy section and the Konosha-2 station of the Arkhangelsk Division of the Northern Railroad have been shifted to the Vologda Division. The Buy-Paprikha section of the Vologda Division will become part of the Buy Division. The Vologda Division's border



with the Arkhangelsk Division of the railroad has been established to the Shirikhanovskiy track station inclusively for the Vologda Division; it has been established with the Solvychevodsk Division to the Konosha-2 station inclusively for the Vologda Division, and with the Buy Division to the Paprikha station inclusively for the Vologda Division. [Text] [Moscow GUDOK in Russian 22 Jan 86 p 2] 8936

NEW TYUMEN OBLAST RAIL LINES--Novyy Urengoy--The "Urengoytransstroy" Trust collective has turned over the first section of the rail line from Novyy Urengoy to Nadym, 52 kilometers long, for temporary operation. Freight trains have been using the new line to Nyda--one of the basic stations where the bases for oil and gas workers of the Nadym deposits are situated. Several days previously, the 110-kilometer section from Purpe to Syvdyrma was accepted for continuous operation by the Surgut Division of the Sverdlovsk Railroad. Six stations with terminals and production and civic structures are situated on it. Trains now are reaching speeds of up to 80 kilometers per hour on the entire proving ground from Surgut to Syvdyrma. And this is making it possible to increase the rate and volume of shipments of national economic freight still farther to the Tyumen North. [By M. Bulanzhe] [Text] [Moscow GUDOK in Russian 24 Jan 86 p 2] 8936

YEREVAN METRO STATION OPENS--Yerevan (ARMENPRESS)--The "Shengavit" station of the Yerevan metro has been turned over for operation. So the line of the blue expresses has been extended by another 1.7 kilometers, and passengers now will be able to travel from the "Druzhba" station to the "Shengavit" station in 12 to 15 minutes. This station is unique. Construction workers had to surmount many difficulties during its construction both on the surface and underground. The metro line has already intersected the broad Tamantsineri Street at the "Gortsaranain" station. However, the railroad bridge in operation made the metro builders' task easier: a new span was erected parallel to it. But after several meters the mainline had to make another crossing--Ordzhonikidze Prospekt this time. And here the designers and builders succeeded in finding an efficient solution: a huge trench was excavated in which tunnels were built. Now trains passing the "Gortsaranain" station 300 meters on the surface "dive" underground. At the same time, the station itself was also built by the open method, and only after that was the huge white arch of the hall covered from above with a thick layer of earth. Driving the tunnel was not easy, either. The arch had to be reinforced each meter, since the line passes near the very surface and a cave-in could be expected any minute. [Excerpt] [Yerevan KOMMUNIST in Russian 27 Jan 86 p 1] The "Shengavit" station, seventh in the first line of the Yerevan metro located in a large industrial rayon of the capital, has been put into operation. The station differs architecturally from other stations in operation; it has no columns, and all structures are located under one arch. A wide, convenient stairway leads to the loading platform. Local construction materials--marble, granite, tuff and basalt--were used in the finishing work. When the "Shengavit" station was turned over for operation, the Yerevan metro obtained an exit to a depot provided with modern equipment for servicing and maintaining the cars. [By S. Markosyan] [Text] [Moscow GUDOK in Russian 13 Feb 86 p 3] 8936

7 April 1986

**SOK RIVER RAILROAD BRIDGE--Kuybyshev--**The collective of bridge-building detachment No 21 has completed construction of a new railroad bridge over 260 meters long across the Sok River, one of the Volga's many tributaries. The builders worked in separate periods in three shifts. Fitters M. Faizov and the brothers Yu. and V. Molyanov, crane operator V. Kiryushin and many others labored selflessly. Trains will use the new bridge in the near future. [By B. Musalitin] [Text] [Moscow GUDOK in Russian 26 Jan p 2] 8936

**32-CAR MOSCOW PASSENGER TRAINS--Moscow (TASS)--**The capital's railroad workers have begun to successfully carry out the intensive pledges of 1986. They have begun using extra-long passenger trains of 32 cars. Yesterday an experimental consist of double capacity left Moscow for Simferopol for the first time. I. Paristyy, chief of the Moscow Railroad, comments on the news. "We have been widely involved since 1979 in intensification of the transport process by means of extending train length," said Ivan Leontyevich. "Initially we developed long high-volume freight trains, then suburban electric trains, and now we have shifted to long-distance passenger trains as well. But as experience shows, this is not enough. This is why after an entire year of studies, calculations and renovation of a number of stations, railroad workers have been able to 'squeeze in' one more train in the rather intensive pace of traffic in the complicated direction of the Moscow-Kursk mainline. It is now running without passengers--an experiment! The very instant of coupling two ordinary trains in Tsaritsyn must be carefully observed. After all, completely conventional trains have left the platforms of the Kursk terminal, but they will be joined in a superexpress at this rebuilt station." [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Jan 86 p 1] 8936

**CHERUSTI-SERGACH LINE ELECTRIFIED--Vladimir Oblast (TASS)--**The first electric trains departed on a run from the Murom station yesterday. A new electrified section of the railroad from Cherusti to Sergach with a total length of 372 kilometers has been turned over for continuous operation. "The combined efforts by the collectives of Ministry of Transport Construction trusts helped to put such a large section of the line in operation," said I. Arendarchuk, chief of the Murom Division of the Gorkiy Railroad. "Operations personnel from over 10 of the country's mainlines came to help the fitters and construction workers. As a result, at the Vekovka station we successfully linked the Moscow Railroad's catenary system of constant voltage and one of alternating voltage--ours. Use of electric locomotives will make it possible to more than double the capacity of the main railroad line of the Murom Division." [Text] [Moscow TRUD in Russian 5 Feb 86 p 1] 8936

**USHUMUN-MAGDAGACHI LINE ELECTRIFIED--Chita--**Electrification of one more section of the Transbaykal Railroad, 109 kilometers long, from Ushumun to Magdagachi has been completed, and traffic has been opened on it for electric trains. Under difficult conditions in the freezing cold, work had to be performed by fitters of EMP-708 and EMP-702 [electric installation trains] of the "Transelektromontazh" Trust and railroad automation specialists from SMP-823 [construction and installation train 823] of the "Transsignalstroy" Trust. But they carried out their task creditably. Construction workers now are engaged in operations on the next section from Magdagachi to Taldan. [By A. Sorokin] [Text] [Moscow GUDOK in Russian 9 Feb 86 p 2] 8936

**RIGA METRO SYSTEM CONSTRUCTION**--Riga--Construction workers of the Latvian capital have begun establishing an industrial base for building a metro. The collective of the "Stroymekhanizatsiya" Trust have begun laying pile-supported foundations for the production complex of a transport enterprise for 200 trucks and construction machines. This very equipment will have to be used to take rock out of the underground excavations and deliver materials and various machinery to the working faces. In a short time it is planned to erect other facilities of the industrial base as well: the metro builders should begin underground operations in 2 years. "The Riga metro is one of the republic's most important construction projects in the current five-year plan," says G. Asaris, the city's chief architect and winner of the Lenin Prize. "The problem of transporting passengers in the capital is becoming more and more acute each year. The distinctive centuries-old layout of ancient Riga, with its narrow streets and alleys, is having an effect. Taking truck transport outside the city center has not resolved the problem. And in summer, when tens of thousands of vacationers come to Riga, transport is overloaded beyond all limits." Eight stations will be built for the metro's first section. The subway route will link the most developed industrial areas, the "VEF" [Riga Electrical Equipment Plant] imeni V. I. Lenin and the Zaslauk railway station. It will cross the city's central rayons and pass under the Daugava River bed. [By IZVESTIYA'S own correspondent Ye. Vostrukhov] [Text] [Moscow IZVESTIYA in Russian 10 Feb 86 p 1] 8936

**ASYNCHRONOUS TRACTION CONFERENCE**--The All-Union scientific and technical conference held at the Moscow Institute of Railroad Transport Engineers by the TsP NTO [governing boards of the scientific and technical societies] of railroad transport and the power and electrical engineering industry and the Locomotives Main Administration of the Ministry of Railways was devoted to the problem of developing asynchronous traction engines. Its participants, scientists of scientific research institutes and VUZ's and specialists of the Ministry of Railways and the electrical engineering industry, studied a number of developments for use on rolling stock with asynchronous drive. This was a kind of review of what has been done and a determination of future prospects for introducing a new type of traction engine. Each form of traction--diesel and electric, and each type of rolling stock--electric locomotive, electric train, and metro cars, have their own characteristics for solution of this problem. Until now, many organizations have operated out of touch with each other with reference to this. The recommendations approved noted that efforts should be united to resolve urgent problems more rapidly. [By G. Grandova] [Text] [Moscow GUDOK in Russian 12 Feb 86 p 3] 8936

**VL85 ELECTRIC LOCO PRODUCTION**--Novocherkassk--The collective of the Novocherkassk Order of Lenin Electric Locomotive Plant is welcoming the 27th CPSU Congress with a great labor victory. A basic point in the pledges made has been fulfilled successfully--the first batch of powerful 12-axle mainline electric locomotives operating on alternating current, the 10,000-kilowatt VL85, has been manufactured a year ahead of schedule. [By I. Zinkov] [Text] [Moscow GUDOK in Russian 13 Feb 86 p 2] 8936

MOSCOW RAILCAR STORAGE FACILITY--Moscow--It is well known that dozens of trains are canceled after the summer passenger trips. A large number of cars are transferred to remote and slack station lines where they at times are found without protection. But at the Moscow car depot of the October Railroad the problem of protecting the fleet of railroad cars is being resolved successfully. In a swampy section overgrown with trees and undergrowth at the Reshetnikovo station, one of the largest bases for storing railroad passenger cars is being established. A building will be erected here which will contain shops for repairing interior equipment and providing rolling stock with water and coal, an electric shop department and other services. The depot's collective has been able to put the first section of the base into operation 5 months ahead of the date scheduled; more than 150 railroad passenger cars have been delivered for protection on a lighted area. And after construction of the second section is completed, the "hotel" will be able to take in about 800 railroad passenger cars. [By GUDOK stringer P. Sokol] [Text] [Moscow GUDOK in Russian 15 Feb 86 p 1] 8936

KEMEROVO RAILROAD ELECTRIFICATION PROGRESS--Biryulinskaya--A labor gift has been presented to the 27th CPSU Congress by transport construction workers and railroad workers of the Kemerovo Railroad. The next electrified section between Pravotomsk and Barzas has been turned over for operation. Now all the coal-loading stations of the Kemerovo subdivision have been electrified. Automatic blocking is in operation from Pravotomsk to Biryulinskaya. Mainline and cable communications lines have been installed. Reconstruction of the Biryulinskaya station has been completed: track in use has been extended and new track has been laid, and dozens of transfer switches have been cut into the system of electrical centralization. Pneumatic air-cooling of switches is being installed. Construction workers of the "Kuzbasstransstroy" Trust, together with subcontractors, have have put more than 6.5 million rubles into use at the complex. In the precommissioning period they were actively assisted by operations pers use at the complex. In the precommissioning period they were actively assisted by operations persoperation of trains weighing 6,000 tons and more here. [By V. Antonov] [Text] [Moscow GUDOK in Russian 26 Feb 86 p 2] 8936

CSO: 1829/96

PORTS AND TRANSSHIPMENT CENTERS

RIGA PORT INCREASES CONTAINER HANDLING CAPACITY

Riga PADOMJU JAUNATNE in Latvian 18 Oct 85 p 1

[Article by D. Gefters, LATINFORM correspondent: "Terminal Capacity Increases", Work And Thoughts For PSKP XXVII Congress!]

[Text] The national commission placed into operation still another complex in the container terminal, in the newest sea trade region of Riga's port. It creates the possibility of handling up to 1 million tons of containerized cargo per year. In the new complex, already the third one built on Kundzin Island in the 11th 5-Year Plan, there is a powerful fleet of mechanical handlers, warehouses, container supply sites, various communication installations, and other important objects.

"The new cargo area has become one of the largest terminals in our country, from the time the complex was put into operation," said Riga's Harbor Master V. Jevstignejevs. Judge for yourself: In 1982, when the terminal had just started operations, 12,000 containers were handled here; a year later, already 33,000, but this year their turnover will reach about 80,000. Electronics are used for managing the complicated handling procedure. An automated container counting and tracking system was put into use. For that reason in the new area, there exists a tendency for continual expansion of cargo turnover.

The specialized computer complex developed here, which directs handling procedures on ships, that ply the friendly route of Riga-Rostok-Riga, works successfully. The harmonious work of dockworkers, sailors, and also information and computer specialists, has allowed to shorten considerably the waiting time for PSRS and VDR ships.

The terminal collective's rhythmical work has favorably influenced all of our operation's economic indicators. This year, in comparison with the respective period last year, productivity in the port has increased by 27 percent and the unit cost of each ton of cargo handled has decreased by 11 percent. All that has helped the port's collective to complete ahead of schedule the 5-year plan's program with respect to the primary indicator of cargo handling. More than 2.5 million tons of economically important cargo has been handled surpassing the 11th 5-Year Plan's goals.

12908/6091  
CSO: 1808/13

7 April 1986

## EXPERIMENTAL SYSTEMS

## DEVELOPMENT OF DIRIGIBLES URGED BY GEORGIAN SCIENTIST

[Editorial Report] Tbilisi KOMUNISTI in Georgian 21 December 1985 carries on page 2 Doctor of Technical Sciences B. Gulisashvili's 1300-word article discussing the many advantages of using dirigibles in various sectors of the national economy. He urges dirigible development in Georgia and sketches the progress of dirigible development both in the West and also in the Soviet Union, until such endeavors were interrupted by World War II. Soviet interest, it is noted, has been revived in recent years, in particular by designers in Leningrad. Georgia, which could benefit greatly from the use of dirigibles in agriculture, logging, livestock farming and tourism, as yet has no development program. The author urges that local officials endeavor to acquire promising designs from Leningrad and encourage development in the republic.

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CSO: 1813/402

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